Federal Register

Friday,
November 29, 2002

Part II

Department of the Interior

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Klamath River and Columbia River Distinct Population Segments of Bull Trout and Notice of Availability of the Draft Recovery Plan; Proposed Rule and Notice

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AI52

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Klamath River and Columbia River Distinct Population Segments of Bull Trout

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose designation of critical habitat for the Klamath River and Columbia River distinct population segments of bull trout (*Salvelinus confluentus*) pursuant to the Endangered Species Act of 1973, as amended (Act). For the Klamath River distinct population segment (DPS), the proposed critical habitat designation includes approximately 476 kilometers (km) (296 miles (mi)) of streams and 13,735 hectares (ha) (33,939 acres (ac)) of lakes and marshes in Oregon. For the Columbia River DPS, the proposed critical habitat designation totals approximately 29,251 km (18,175 mi) of streams and 201,850 ha (498,782 ac) of lakes and reservoirs, which includes: approximately 14,416 km (8,958 mi) of streams and 83,219 ha (205,639 ac) of lakes and reservoirs in the State of Idaho; 5,341 km (3,319 mi) of streams and 88,051 ha (217,577 ac) of lakes and reservoirs in the State of Montana; 5,460 km (3,391 mi) of streams and 18,077 ha (44,670 ac) of lakes and reservoirs in the State of Oregon; and 4,034 km (2,507 mi) of streams and 12,503 ha (30,897 ac) of lakes and reservoirs in the State of Washington.

If this proposal is made final, Federal agencies will be required to meet the requirements of section 7(a)(2) of the Act with regard to critical habitat. Specifically, Federal agencies shall, in consultation with us, ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The term ''destruction or adverse modification'' means direct or indirect alteration that appreciably diminishes the value of the critical habitat for both the survival and recovery of a listed species (50 CFR 402.02). Section 4(b)(2) of the Act requires our designation of critical habitat to be made on the basis of the best scientific data available and after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat.

We solicit data and comments from the public on all aspects of this proposal, including data on economic and other impacts of the designation. We may revise this proposal prior to final designation to address new information received during the comment period.

DATES: We will consider all comments on this proposed rule received until the close of business on January 28, 2003. We will hold public hearings from 6 p.m. to 8 p.m. at the following locations on the dates specified: Wenatchee, WA, on January 7, 2003; Polson, MT, on January 7, 2003; Salmon, ID, on January 7, 2003; Spokane, WA, on January 9, 2003; Lewiston, ID, on January 9, 2003; Boise, ID, on January 14, 2003; Eugene, OR, on January 14, 2003; Pendleton, OR, on January 16, 2003; and Klamath Falls, OR, on January 22, 2003. (See the Public Hearings section for additional information, including specific addresses for each location.)

ADDRESSES: If you wish to comment, you may submit your comments and materials by any of several methods:

You may submit written comments and information to John Young, Bull Trout Coordinator, U.S. Fish and Wildlife Service, Branch of Endangered Species, 911 NE. 11th Avenue, Portland, Oregon 97232 (telephone 503/231–6131; facsimile 503/231–6243).

You may hand-deliver written comments to our office during normal business hours at the address given above.

You may also send comments by electronic mail (e-mail) to: *R1BullTroutCH@r1.fws.gov.*

See the Public Comments Solicited section below for file format and other information about electronic filing.

Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: John Young, at the above address, (telephone 503/231–6131; facsimile 503/231–6243).

SUPPLEMENTARY INFORMATION:

Background

Bull trout (*Salvelinus confluentus*) are members of the char subgroup of the family Salmonidae and are native to waters of western North America. The historic range of bull trout includes major river basins in the Pacific Northwest from about 41° N to 60° N latitude, extending south to the McCloud River in northern California and the Jarbidge River in Nevada, and north to the headwaters of the Yukon River in Northwest Territories, Canada (Cavender 1978; Bond 1992). To the west, bull trout range includes Puget Sound, various coastal rivers of British Columbia, Canada, and southeast Alaska (Bond 1992). Bull trout are relatively dispersed in the Columbia River and Snake River basins, extending east to headwater streams in Montana and Idaho, and into Canada. Bull trout also occur in the Klamath River basin of south-central Oregon. East of the Continental Divide in Canada, bull trout are found in the headwaters of the Saskatchewan River in Alberta and the MacKenzie River system in Alberta and British Columbia (Cavender 1978; Brewin and Brewin 1997).

Bull trout were first described as *Salmo spectabilis* by Girard in 1856, and subsequently described under various names, such as *Salmo confluentus* and *Salvelinus malma* (Cavender 1978). Bull trout and Dolly Varden (*Salvelinus malma*) previously were considered a single species (Cavender 1978; Bond 1992). However, in 1980, the American Fisheries Society formally recognized bull trout and Dolly Varden as separate species based on various specific physical differences and distributional information (Cavender 1978; Robins *et al.* 1980). Bull trout have an elongated body and large mouth, with the maxilla (jaw) extending beyond the eye and with well-developed teeth on both jaws and head of the vomer (a bone in teleost fishes that forms the front part of the roof of the mouth and often bears teeth). Bull trout have 11 dorsal fin rays, 9 anal fin rays, and the caudal fin is slightly forked. Although they are often olive green to brown with paler sides, color is variable with locality and habitat.

Bull trout exhibit a number of life-history strategies. Stream-resident bull trout complete their entire life cycle in the tributary streams where they spawn and rear. Some bull trout are migratory, spawning in tributary streams where juvenile fish usually rear from 1 to 4 years before migrating to either a larger river (fluvial) or lake (adfluvial) where they spend their adult life, returning to the tributary stream to spawn (Fraley and Shepard 1989). These migratory forms occur in areas where conditions allow for movement from upper watershed spawning streams to larger downstream waters that contain greater foraging opportunities (Dunham and Rieman 1999). Resident and migratory forms may be found together, and either form can produce resident or migratory offspring (Rieman and McIntyre 1993). Bull trout in the Coastal-Puget Sound area are believed to include an

anadromous form which migrates to saltwater to mature, returning to streams to spawn (64 FR 58912).

The size of bull trout is variable depending on life-history strategy. Resident bull trout tend to be small, averaging 200 millimeters (mm) (8 inches (in)) in length and rarely exceeding 305 mm (12 in). Adults that migrate to larger downstream rivers average about 405 mm (16 in), and often exceed 610 mm (24 in) (Goetz 1989). Maximum sizes are reached in large lakes and reservoirs where adults grow over 685 mm (27 in) in length and 10 kilograms (kg) (22 pounds (lbs)) in weight (McPhail and Baxter 1996). The largest recorded bull trout was taken in Lake Pend Oreille, Idaho, in 1949; it was almost 1 meter (m) (39 in) long and weighed 14.6 kg (32 lbs) (Simpson and Wallace 1982).

Under appropriate conditions, bull trout regularly live to 10 years, and under exceptional circumstances, reach ages in excess of 20 years (Fraley and Shepard 1989; McPhail and Baxter 1996). They normally reach sexual maturity in 4 to 7 years.

Bull trout are opportunistic feeders, with food habits that primarily are a function of size and life history strategy. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macro-zooplankton, and small fish (Donald and Alger 1993; McPhail and Baxter 1996). Adult migratory bull trout feed almost exclusively on other fish (Rieman and McIntyre 1993).

Bull trout have more specific habitat requirements than most other salmonids (Rieman and McIntyre 1993). Habitat components that particularly influence their distribution and abundance include water temperature, cover, channel form and stability, spawning and rearing substrate conditions, and migratory corridors (Fraley and Shepard 1989; Goetz 1989; Watson and Hillman 1997).

Relatively cold water temperatures are characteristic of bull trout habitat. Water temperatures above 15 °Celsius (C) (59 °Fahrenheit (F)) are believed to limit their distribution (Fraley and Shepard 1989; Rieman and McIntyre 1996). Although adults have been observed in large rivers throughout the Columbia River basin in water temperatures up to 20 °C (68 °F), Gamett (1999) documented steady and substantial declines in abundance in stream reaches where water temperature ranged from 15 to 20 °C (59 to 68 °F). Thus, water temperature may partially explain the generally patchy distribution of bull trout in a watershed. In large rivers, bull trout are often observed ''dipping'' into the lower reaches of tributary streams, and it is suspected that cooler waters in these tributary mouths may provide important thermal refugia, allowing them to forage, migrate, and overwinter in waters that would otherwise be, at least seasonally, too warm. Spawning areas often are associated with cold-water springs, groundwater infiltration, and the coldest streams in a given watershed (Pratt 1992; Rieman and McIntyre 1993; Rieman *et al.* 1997).

Throughout their lives, bull trout require complex forms of cover, including large woody debris, undercut banks, boulders, and pools (Fraley and Shepard 1989; Watson and Hillman 1997). Juveniles and adults frequently inhabit side channels, stream margins, and pools with suitable cover (Sexauer and James 1997). McPhail and Baxter (1996) reported that newly emerged fry are secretive and hide in gravel along stream edges and in side channels. They also reported that juveniles are found mainly in pools but also in riffles and runs that they maintain focal sites near the bottom, and that they are strongly associated with instream cover, particularly overhead cover. Bull trout have been observed overwintering in deep beaver ponds or pools containing large woody debris (Jakober 1995). Adult bull trout migrating to spawning areas have been recorded as staying two to four weeks at the mouths of spawning tributaries in deeper holes or near log or cover debris (Fraley and Shepard (1989)).

The stability of stream channels and stream flows are important habitat characteristics for bull trout populations (Rieman and McIntyre 1993). The side channels, stream margins, and pools with suitable cover for bull trout are sensitive to activities that directly or indirectly affect stream channel stability and alter natural flow patterns. For example, altered stream flow in the fall may disrupt bull trout during the spawning period, and channel instability may decrease survival of eggs and young juveniles in the gravel during winter through spring (Fraley and Shepard 1989; Pratt 1992; Pratt and Huston 1993).

Watson and Hillman (1997) concluded that watersheds must have specific physical characteristics to provide the necessary habitat requirements for bull trout spawning and rearing, and that the characteristics are not necessarily ubiquitous throughout the watersheds in which bull trout occur. The preferred spawning habitat of bull trout consists of low-gradient stream reaches with loose, clean gravel (Fraley and Shepard 1989). Bull trout typically spawn from August to November during periods of decreasing water temperatures (Swanberg 1997). However, migratory forms are known to begin spawning migrations as early as April, and to move upstream as much as 250 km (155 mi) to spawning areas (Fraley and Shepard 1989; Swanberg 1997). Fraley and Shepard (1989) reported that initiation of spawning by bull trout in the Flathead River system appeared to be related largely to water temperature, with spawning initiated when water temperatures dropped below 9–10 °C (48 to 50 °F). Goetz (1989) reported a temperature range from 4 to 10 °C (39 to 50 °F) (Goetz 1989). Such areas often are associated with cold-water springs or groundwater upwelling (Rieman *et al.* 1997; Baxter *et al.* 1999). Fraley and Shepard (1989) also found that groundwater influence and proximity to cover are important factors influencing spawning site selection. They reported that the combination of relatively specific requirements resulted in a restricted spawning distribution in relation to available stream habitat.

Depending on water temperature, egg incubation is normally 100 to 145 days (Pratt 1992). Water temperatures of 1.2 to 5.4 °C (34.2 to 41.7 °F) have been reported for incubation, with an optimum (best embryo survivorship) temperature reported to be from 2 to 4 °C (36 to 39 °F) (Fraley and Shepard 1989; McPhail and Baxter 1996). Juveniles remain in the substrate after hatching, such that the time from egg deposition to emergence of fry can exceed 200 days. During the relatively long incubation period in the gravel, bull trout eggs are especially vulnerable to fine sediments and water quality degradation (Fraley and Shepard 1989). Increases in fine sediment appear to reduce egg survival and emergence (Pratt 1992). Juveniles are likely similarly affected. High juvenile densities have been reported in areas characterized by a diverse cobble substrate and a low percent of fine sediments (Shepard *et al.* 1984).

The ability to migrate is important to the persistence of local bull trout subpopulations (Rieman and McIntyre 1993; Gilpin 1997; Rieman and Clayton 1997; Rieman *et al.* 1997). Bull trout rely on migratory corridors to move from spawning and rearing habitats to foraging and overwintering habitats and back. Migratory bull trout become much larger than resident fish in the more productive waters of larger streams and lakes, leading to increased reproductive potential (McPhail and Baxter 1996). The use of migratory corridors by bull trout also results in increased dispersion, facilitating gene flow among local populations when individuals

from different local populations interbreed, stray, or return to nonnatal streams. Also, local populations that have been extirpated by catastrophic events may become reestablished as a result of movements by bull trout through migratory corridors (Rieman and McIntyre 1993, Montana Bull Trout Scientific Group (MBTSG) 1998).

While stream habitats have received more attention, lakes and reservoirs also figure prominently in meeting the life cycle requirements of bull trout. For adfluvial bull trout populations, lakes and reservoirs provide an important component of the core foraging, migrating, and overwintering habitat, and are integral to maintaining the adfluvial life history strategy that is commonly exhibited by bull trout. When juvenile bull trout emigrate downstream to a lake or reservoir from the spawning and rearing streams in the headwaters, they enter a more productive lentic environment that allows them to achieve rapid growth and energy storage. Typically, juvenile bull trout are at least two years old and 100 mm (4 inches) or longer upon entry to the lake environment. For the next 2–4 years they grow rapidly. At a typical age of five years or older, when total length normally exceeds 400 mm (16 inches), they reach sexual maturity. The lake environment provides the necessary attributes of food, space, and shelter for the subadult fish to prepare for the rigors of migratory passage upstream to the natal spawning area, a migration that may last as long as six months and cover distances as much as 250 km (155 mi) upriver.

When adfluvial bull trout reach adulthood and complete the spawning migration, mating in the fall in the stream where they originated, they usually return downstream to the lake very rapidly. Adult adfluvial bull trout may live as long as 20 years and can complete multiple migrations between the lake and the spawning stream. In many populations, alternate year spawning is the normal pattern, and adult fish may require as much as 20 months in the lake or reservoir habitat to facilitate adequate energy storage and gamete development before they return to spawn again.

In comparison to streams, lake and reservoir environments are relatively more secure from catastrophic natural events. They provide a sanctuary for bull trout, allowing them to quickly rebound from temporary adverse conditions in the spawning and rearing habitat. For example, if a major wildfire burns a drainage and eliminates most or all aquatic life (a rare occurrence), bull trout subadults and adults that survive in the lake may return the following year to repopulate the system. In this way, lakes and reservoirs provide an important adaptive element of the adfluvial life history strategy.

The construction of reservoirs may have had adverse effects to bull trout, but some reservoirs also have provided unintended benefits. For example, the basin of Hungry Horse Reservoir has functioned adequately for fifty years as a surrogate home for stranded Flathead Lake bull trout trapped upstream of the dam when it was completed. While this is an artificial impoundment, the habitat the reservoir provides and the presence of an enhanced prey base of native minnows, suckers, and whitefish within the reservoir sustain a large adfluvial bull trout population. Additionally, while barriers to migration are often viewed as a negative consequence of dams, the connectivity barrier at Hungry Horse Dam has also served an important, albeit unintended, function in restricting the proliferation of nonnative *Salvelinus* species (brook trout and lake trout) from downstream areas upstream above the dam.

In addition to considering various habitat features and other factors that relate to individuals and populations of bull trout in relatively localized areas, attention also is being given to broader scale considerations of the distribution and abundance of bull trout, based on applying the theories and principles of conservation biology and metapopulation dynamics (Rieman and McIntyre 1993; Kanda 1998). Conservation biology is a scientific discipline that has emerged from a basis in several other sciences (*e.g.*, population genetics, demography, biogeography, and community ecology) and addresses applied problems in conservation, especially diversity, scarcity, and extinction (Noss and Cooperrider 1994). A metapopulation is an interacting network of local subpopulations, in which individual demographics units are connected through dispersal and migration with varying frequencies of gene flow among them (Meefe and Carroll 1994). Metapopulation models are used in conservation biology to describe the structure and dynamics of populations that occur in different locations across a landscape and to identify subpopulations, habitat patches, and links between habitat patches that are of crucial importance to maintaining the overall metapopulation. Under conditions where metapopulation dynamics are functioning, providing an appropriate amount and spatial distribution of habitat to support metapopulations can be crucial to reducing the risk of extinction of a species or population because even though local subpopulations may become extinct, they can be replaced (reestablished) by individuals from other local subpopulations or populations.

One of the key factors influencing the distribution and abundance of bull trout is the extent to which habitat patches in sufficient number and proximity provide for the natural reestablishment of local subpopulations. The rate at which reestablishment might occur is another key factor. Because bull trout exhibit strong homing fidelity when spawning and their rate of straying appears to be low, natural reestablishment of extinct local subpopulations may take a very long time even if habitat connectivity is retained.

Genetic diversity in bull trout is another issue of concern, and is related to the distribution and abundance of bull trout habitat and populations. Habitat alteration, primarily through construction of impoundments, dams, and water diversions, has substantially increased habitat fragmentation, eliminated migratory corridors, and isolated bull trout, often in the headwaters of tributaries (Rieman *et al.* 1997). In their review of the status of bull trout populations in Oregon, Ratliff and Howell (1992) described various factors that have resulted in bull trout populations becoming largely fragmented and isolated in the upper reaches of drainages, with most of the remaining populations being the resident form of bull trout, rather than the migratory forms that would have used the lower stream reaches that now have been altered by various types of developments or by cumulative impacts from upstream areas. Ratliff and Howell specifically noted that habitat fragmentation and the resulting isolation of populations can exacerbate problems facing declining populations, including reduced genetic variability that can lead to inbreeding depression, further lowering productivity and increasing the risk of extinction. They described the loss of fluvial and adfluvial life histories as a major concern for bull trout conservation, noting that these larger fish have greater reproductive potential because of their increased fecundity and also are less likely to hybridize with the smaller brook trout that often co-occur in spawning areas.

Genetic diversity enhances long-term survival of a species by increasing the likelihood that the species is able to survive changing environmental conditions. For instance, a local

population of bull trout may contain individuals with genes that enhance their ability to survive in the prevailing local environmental conditions (Leary *et al.* 1993; Spruell *et al.* 1999; Hard 1995). Individuals with a different genetic complement may persist in the local population in much lower abundance than those with locally adapted genes. However, if environmental conditions change due to natural processes or human activities, the survival of individuals adapted to previous conditions may no longer be enhanced. Individuals with the alternative genetic complement may increase in relative abundance if their survival is enhanced in the altered environmental conditions. Moreover, considerable genetic diversity may be distributed among local populations so that changing environmental conditions could lead to extirpation of a local population of bull trout, but the area could be repopulated by individuals from another local population that possess genes whose survival is enhanced under the new conditions. If the overall genetic diversity distributed across local populations of bull trout is reduced by the loss of local populations, the ability of the species to respond to changing conditions is likewise reduced, leading to a higher likelihood of extinction (Rieman and McIntyre 1993; Leary *et al.* 1993; Spruell *et al.* 1999; Hard 1995; Rieman and Allendorf 2001).

Bull trout populations contain low levels of genetic variability within them compared to relatively high levels of divergence and variability exhibited among populations (Leary *et al.* 1993; Leary and Allendorf 1997; Spruell *et al.* 1999; Taylor *et al.* 1999). For example, Leary *et al.* (1993) state that ''* * * a relatively high amount (40%) of the total genetic variation within the Columbia River drainage is * * * due to genetic differences among samples. This is in striking contrast to the results * * * with rainbow trout and * * * with chinook salmon * * * where only 10% of the total genetic variation was due to genetic differences among populations sampled from a geographical area similar to that of our samples of bull trout.'' This type of genetic structuring indicates limited gene flow among bull trout populations, which may encourage local adaption within individual populations (Spruell *et al.* 1999; Healey and Prince 1995; Hard 1995; Rieman and McIntyre 1993).

Current information on the distribution of genetic diversity within and among bull trout populations is based on molecular characteristics of individual genes. While such analyses are extremely useful, they are not likely to detect variability in adaptive traits that are dependent on both the genotype (molecular genetic characteristics) and phenotype (observable expression, which may be influenced by genotype, the environment, and interactions of both) of an organism (Hard 1995). We may not be able to directly detect or measure the relations among genetic diversity, phenotypes, and adaptive traits of a population. Although the loss of a few populations may have little effect on overall genetic diversity, without conserving suites of populations and their habitats (*i.e.*, core areas and, on a larger scale, recovery units), the loss of phenotypic diversity may be substantial, with negative consequences to the viability of the species (Healey and Prince 1995; Hard 1995; Rieman and McIntyre 1993; Nelson *et al.* 2002; MBTSG 1998; Taylor *et al.* 1999). Therefore, the maintenance of phenotypic variability and plasticity for adaptive traits (*e.g.*, variability in body size and form, foraging efficiency, and timing of migrations, spawning, and maturation) is achieved by conserving populations, their habitats, and opportunities for the species to take advantage of habitat diversity (Healey and Prince 1995; Hard 1995).

Studies to understand the relations among genotypic, phenotypic, and environmental variability relative to bull trout have been conducted. For example, Spruell *et al.* (1999) found that bull trout at five different spawning sites within a tributary drainage of Lake Pend Oreille, Idaho, were differentiated based on genetic analyses (microsatellite DNA), indicating fidelity to spawning sites and relatively low rates of gene flow among sites. Genetic isolation of bull trout and environmental variability of tributary streams in the Lake Pend Oreille system implies that bull trout may be uniquely adapted within and among spawning tributaries in the system. Because bull trout in the coterminous United States are distributed over a wide geographic area consisting of various environmental conditions, and because they exhibit considerable genetic differentiation among populations, the occurrence of local adaptation is expected to be extensive. Some readily observable examples of differentiation between populations include external morphology and behavior (*e.g.*, size and coloration of individuals; timing of spawning and migratory forays). Thus, conserving many populations across the range of the species is crucial to adequately protect genetic and phenotypic diversity of bull trout (Hard 1995; Healey and Prince 1995; Taylor *et al.*1999; Rieman and McIntyre 1993; Spruell *et al.* 1999; Leary *et al.* 1993; Rieman and Allendorf 2001). Changes in habitats and prevailing environmental conditions are increasingly likely to result in extinction of bull trout if genetic and phenotypic diversity is lost.

Scientific evidence also supports the position that maintaining multiple bull trout populations distributed and interconnected throughout their current range will provide a mechanism for reducing the risk of extinction from stochastic events (Rieman and McIntyre 1993; Rieman and Allendorf 2001; Spruell *et al.* 1999; Healey and Prince 1995; Hard 1995). Bull trout have a broad distribution and are relatively secure in some parts of their range. However, declines and local extinctions have occurred. Current patterns in the distribution and other empirical evidence, when interpreted in view of emerging conservation theory, indicate that further declines and local extinctions are likely (Rieman *et al.* 1997; Spruell *et al.* 2002; Rieman and Allendorf 2001; Dunham and Rieman 1999).

The range of the bull trout has decreased in comparison to the known and estimated historic range in the conterminous United States. Bull trout are now extinct in northern California. Elsewhere, populations have been much reduced, fragmented, or eliminated from the main stems of many large river systems.

Historical records for the Klamath River basin suggest that bull trout in this distinct population segment were once widely distributed and exhibited diverse life-history traits in that part of their range (Ziller 1992). Currently, however, bull trout in this basin are almost entirely nonmigratory, resident fish that are confined to headwater streams (Goetz 1989). There currently are nine naturally occurring, nonmigratory populations, and one remnant fluvial population, that still occur in the Upper Klamath Lake, Sprague River, and Sycan Marsh watersheds in Oregon. They represent an estimated 21 percent of the estimated historic range of bull trout in the Klamath River basin (Quigley and Arbelbide 1997). These known remaining local populations are considered to be quite low in abundance; they are highly isolated from one another as a result of natural and human-caused conditions and are at substantial risk of extirpation due to natural disturbance cycles, random events, and other risk factors (Light *et al.* 1996).

The Columbia River population segment includes bull trout residing in

portions of Oregon, Washington, Idaho, and Montana. Bull trout are estimated to have once occupied about 60 percent of the Columbia River basin; they presently are known or predicted to occur in less than half (approximately 45 percent) of watersheds in the historical range (Quigley and Arbelbide 1997), which amounts to approximately 27 percent of the basin. The principal river systems and lakes/reservoirs in the Columbia River basin where bull trout currently are known to occur are as follows: The Willamette River system (in upper tributaries only), Lewis River, Klickitat River, Hood River, Deschutes River, Metolius River, Lake Billy Chinook, Odell Lake, John Day River, Sycan River, Sprague River, Umatilla River, Walla Walla River, Yakima River, Columbia River, Snake River, Tucannon River, Grande Ronde River, Clearwater River, Asotin Creek, Imnaha River, Salmon River, Little Lost River, Malheur River, Powder River, Payette River, Boise River, Weiser River, Wenatchee River, Entiat River, Methow River, Rimrock Lake, Spokane River, Pend Oreille River, Flathead River, Swan River, Clark Fork River, Kootenai River, Bitterroot River, Blackfoot River, Hungry Horse Reservoir, Swan Lake, and Flathead Lake (Bull Trout Draft Recovery Plan (Draft Recovery Plan), USFWS 2002).

Although still relatively widely distributed in the Columbia River basin, bull trout occur in low numbers in many areas, and populations are considered depressed or declining across much of their range (Ratliff and Howell 1992; Schill 1992; Thomas 1992; Buchanan *et al.* 1997; Rieman *et al.* 1997, Quigley and Arbelbide 1997). Another evaluation of the distribution and status of bull trout within the Columbia River and Klamath River basins indicates bull trout are present in about 36 percent of the subwatersheds in their potential range and are estimated to have strong populations in only 6 to 12 percent of the potential range, with most populations considered to be depressed in numbers (Rieman *et al.*1997).

The range of the bull trout is likely to have contracted and expanded over time in relation to natural climate changes; the distribution of the species probably was likely patchy even in pristine environments. However, regardless of uncertainty about the exact historical range, the number and size of historical populations, and the role of natural factors in the status of the species, there is widespread agreement in scientific literature that many factors related to human activities have impacted bull trout and continue to pose significant risks of further extirpations of local populations. Among the many factors that contributed to the decline of bull trout in the Columbia River and Klamath River basins, those which appear to be particularly significant are as follows: (1) Fragmentation and isolation of local populations due to the proliferation of dams and water diversions that have eliminated habitat, altered water flow and temperature regimes, and impeded migratory movements (Rieman and McIntyre 1993; Dunham and Rieman 1999); (2) degradation of spawning and rearing habitat in upper watershed areas, particularly alterations in sedimentation rates and water temperature, resulting from past forest and rangeland management practices and intensive development of roads (Fraley and Shepard 1989; Montana Bull Trout Scientific Group (MBTSG) 1998); and (3) the introduction and spread of nonnative species, particularly brook trout (*Salvelinus fontinalis*) and lake trout (*Salvelinus namaycush*), which compete with bull trout for limited resources and, in the case of brook trout, hybridize with bull trout (Ratliff and Howell 1992; Leary *et al.* 1993).

The ramifications and effects of isolation and habitat fragmentation on various aspects of the life cycle of bull trout are highlighted in much of the scientific literature on this species. Isolation of populations and habitat fragmentation resulting from barriers to migration have negatively impacted affected bull trout in several ways that have important implications for the conservation of the species. These include: (1) Reducing geographical distribution (Rieman and McIntyre 1993, MBTSG 1998); (2) increasing the probability of losing individual local populations (Rieman and McIntyre 1993, Rieman *et al.* 1995, MBTSG 1998, Dunham and Rieman 1999, Nelson *et al.* 2002); (3) increasing the probability of hybridization with introduced brook trout (Rieman and McIntyre 1993); (4) reducing the potential for movements that are necessary to meet developmental, foraging, and seasonal habitat requirements (Rieman and McIntyre 1993, MBTSG 1998); and (5) reducing reproductive capability by eliminating the larger, more fecund migratory form of bull trout from many subpopulations (Rieman and McIntyre 1993, MBTSG 1998).

Introduced brook trout threaten bull trout through competition, hybridization, and possibly predation (Leary *et al.* 1993). Brook trout appear to be better adapted to degraded habitat than bull trout, and brook trout are more tolerant of high water temperatures. Hybridization between brook trout and bull trout has been reported in Montana, Oregon, Washington, and Idaho. In addition, brook trout mature at an earlier age and have a higher reproductive rate than bull trout. This difference appears to favor brook trout over bull trout when they occur together, often leading to the decline or extirpation of bull trout (Leary *et al.* 1993; MBTSG 1998). Nonnative lake trout also negatively affect bull trout. A study of 34 lakes in Montana, Alberta, and British Columbia found that lake trout reduce the distribution and abundance of migratory bull trout in mountain lakes and concluded that lacustrine populations of bull trout usually cannot be maintained if lake trout are introduced (Donald and Alger 1993).

Previous Federal Action

On September 18, 1985, we published an animal Notice of Review in the **Federal Register** (50 FR 37958) designating the bull trout as a category 2 candidate for listing in the coterminous United States. Under the definitions we used at that time, category 2 taxa were those for which we had information indicating that proposing to list was possibly appropriate, but for which persuasive data on biological vulnerability and threat were not currently available to support a proposed rule. We published updated Notices of Review on January 6, 1989 (54 FR 554), and November 21, 1991 (56 FR 58804), reconfirming the bull trout category 2 status. On November 15, 1994 (59 FR 58982), we elevated bull trout in the coterminous United States to a category 1 candidate for Federal listing. Category 1 taxa were those for which we had on file substantial information on biological vulnerability and threats to support preparation of listing proposals.

On June 13, 1997, we published in the **Federal Register** (62 FR 32268) a proposed rule to list the Klamath River population segment of bull trout as an endangered species, and the Columbia River population segment of bull trout as a threatened species. On June 10, 1998, we published a final rule in the **Federal Register** (63 FR 31647) determining the Klamath River and Columbia River population segments of bull trout to have threatened status under the Act. At the time of listing, we made the finding that critical habitat was not determinable for these populations because their habitat needs were not sufficiently well known (63 FR 31647). (For a further summary of previous Federal action, see 64 FR 58916.)

On January 26, 2001, the Alliance for the Wild Rockies, Inc. and Friends of the Wild Swan, Inc. filed a lawsuit in the U.S. District Court of Oregon challenging our failure to designate critical habitat for bull trout. We entered into a settlement agreement on January 14, 2002, which stipulated that we would make critical habitat determinations for the five population segments of bull trout (Civil Case No: CV 01–127–JO). For the Klamath River and Columbia River populations, we agreed to submit for publication in the **Federal Register** a proposed rule for critical habitat designation by October 1, 2002, and a final rule by October 1, 2003. A subsequent agreement resulted in extending the date for the publication of the proposed rule to November 12, 2002.

Critical Habitat

Critical habitat is defined in section 3 of the Act as: (i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. ''Conservation'' is defined by the Act as the use of all methods and procedures which are necessary to bring any endangered or a threatened species to the point at which the measures provided pursuant to the Act are no longer necessary.

Critical habitat receives protection under section 7(a)(2) of the Act through the requirement that Federal agencies shall, in consultation with us, ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. Section 7(a)(4) requires Federal agencies to confer with us on any agency action which is likely to result in the destruction or adverse modification of proposed critical habitat. The term ''destruction or adverse modification'' is defined at 50 CFR 402.02 as a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

Aside from the added protection that may be provided under section 7, the Act does not provide other forms of protection to lands designated as critical habitat. Because the consultation requirements under section 7 of the Act do not apply to activities on private or other non-Federal lands unless those activities involve a Federal nexus, critical habitat designation on such lands would not afford any additional protections under the Act.

Critical habitat also provides nonregulatory benefits to the species by informing the public and private sectors of areas that are important for species recovery, and where conservation actions would be most effective. Designation of critical habitat can help focus conservation activities for a listed species by identifying areas that contain the physical and biological features essential for the conservation of that species, and can alert the public as well as land-managing agencies to the importance of those areas. Critical habitat also identifies areas that may require special management considerations or protection, and may help provide protection to areas where significant threats to the species have been identified, by helping people to avoid causing accidental damage to such areas.

In order to be included in a critical habitat designation, the habitat must be ''essential to the conservation of the species.'' Critical habitat designations identify, to the extent known, and using the best scientific data available, habitat areas that provide at least one of the physical or biological features essential to the conservation of the species (primary consituent elements, as defined at 50 CFR 424.12(b)). Section 3(5)(C) of the Act specifies that except in those circumstances determined by the Secretary of the Interior (Secretary), critical habitat shall not include the entire geographical areas which can be occupied by the listed species. Regulations at 50 CFR 424.12(e) also state that, ''The Secretary shall designate as critical habitat areas outside the geographical area presently occupied by the species only when a designation limited to its present range would be inadequate to ensure the conservation of the species.''

Section 4(b)(2) of the Act requires that we take into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. We may exclude areas from critical habitat designation if we determine that the benefits of such exclusion outweigh the benefits of including the areas within critical habitat, unless we determine, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species.

Section 4 of the Act requires that we designate critical habitat based on what we know at the time of designation. We recognize that habitat is often dynamic, undergoing naturally-occurring changes that can alter its importance to, and use by, a listed species. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the recovery of the species. For these reasons, critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery. Areas that support newly discovered populations in the future, but are outside the critical habitat designation, will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act, to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, and to the section 9 prohibitions, as determined on the basis of the best available information at the time of the action. Federally funded or assisted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, we designate critical habitat concurrently with listing a species. In our final listing rule (63 FR 31647), we concluded that the designation of critical habitat for the bull trout was not determinable at that time, explaining that the biological needs of bull trout in the Klamath River and Columbia River population segments were not sufficiently well known to permit identification of areas as critical habitat. Further, the extent of habitat required and specific management measures needed for recovery of these fish had not been identified.

Shortly after the species was listed in 1998, we initiated development of a recovery plan for bull trout and convened 27 individual Recovery Unit Teams throughout five States to begin gathering information on the status and conservation needs of the species. These

teams were composed of experts from the fields of biology, other scientific disciplines such as hydrology and forestry, resource users, and other stakeholders with interest in and knowledge of bull trout and the habitats they depend on for survival. The recovery planning process in general, and the individual Recovery Unit Teams in particular, generated a considerable body of new information on the biological needs of bull trout, the extent of habitat required, and specific management needs. There also have been new scientific publications, and additional information has become available from various State and Federal agencies since the 1998 listing action. As a result, we now find that sufficient information exists to determine critical habitat for the Klamath River and Columbia River bull trout population segments.

Our Policy on Information Standards Under the Endangered Species Act, published on July 1, 1994 (59 FR 34271), provides criteria, establishes procedures, and provides guidance to ensure that the decisions made by the Service represent the best scientific and commercial data available. It requires that our biologists, to the extent consistent with the Act and with the use of the best scientific and commercial data available, use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information should be the listing rule for the species. Additional information may be obtained from a recovery plan, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, unpublished materials, and expert opinions.

Methods

As required by the Act and regulations at 50 CFR 424.12, we used the best scientific data available to determine critical habitat, giving consideration to those physical and biological features that are essential to the conservation of the bull trout. As described at 50 CFR 424.12(b), such requirements include, but are not limited to, the following: (1) Space for individual and population growth and for normal behavior; (2) Food, water, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding, reproduction, rearing of offspring; and generally; (5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

In proposing critical habitat, we reviewed the overall approaches to the conservation of the species undertaken by local, State, and Federal agencies; Tribal governments; and private individuals and organizations since the species was listed in 1998. We relied heavily on information developed by the bull trout Recovery Unit Teams, which were comprised of Federal, State, Tribal, and private biologists, as well as experts from other scientific disciplines such as hydrology and forestry, resource users, and other stakeholders with an interest in bull trout and the habitats they depend on for survival. We reviewed available information concerning bull trout habitat use and preferences, habitat conditions, threats, limiting factors, population demographics, and the known locations, distribution and abundances of bull trout.

During our evaluation of information, we also took into account the relatively low probability of detection of bull trout in traditional fish sampling and survey efforts, as well as the limited extent of such efforts across the range of bull trout. Because of their varied life history strategies, nocturnal habits, and low population densities in many areas, the detectability of bull trout in a given area is highly variable (Rieman and McIntyre 1993). Furthermore, much of the current information on bull trout presence is the product of informal surveys or sampling conducted for other species or other purposes. The primary limitations of informal surveys are that they provide no estimate of certainty (*i.e.*, a measure of the probability of detection), and that they may be inadequate for determining parameters such as the densities and distribution of the population. (The need for a statistically sound bull trout survey protocol has been addressed only recently through the development, by the American Fisheries Society, of a peer-reviewed protocol for determining presence/absence, and potential habitat suitability for juvenile and resident bull trout (Peterson *et al.* 2002).) Consequently, with some exceptions (*e.g.*, areas of Montana where bull trout surveys have been consistently conducted for a decade or more), a lack of bull trout detections does not provide definitive evidence of their absence in a particular stream, lake, or river. Accordingly, we used information gathered during the bull trout recovery planning process, as supplemented by even more recent information developed by State agencies, Tribes, the U.S. Forest Service (USFS), and other entities, in the development of our critical habitat designation proposal. Data concerning habitat conditions or status of primary constituent elements were used when available. To address areas where data gaps exist, we solicited expert opinions from knowledgeable fisheries biologists in the local area.

Important considerations in selecting areas for critical habitat designation include factors specific to each river system, such as size (*e.g.*, stream order), gradient, channel morphology, connectivity to other aquatic habitats, and habitat complexity and diversity, as well as range-wide recovery considerations. This effort was especially assisted by the recovery strategy described in the Draft Recovery Plan (USFWS 2002). We took into account that preferred habitat for bull trout ranges from small headwater streams that are used largely for spawning and rearing, to downstream, mainstem portions of river networks that are used for rearing, foraging, overwintering, and migration.

Our method included consideration of information regarding habitat essential to maintaining the migratory life history forms of bull trout, in light of the repeated emphasis about the importance of such habitat in the scientific literature (Rieman and McIntryre 1993; Hard 1995; Healey and Prince 1995; Rieman *et al.* 1995; MBTSG 1998; Dunham and Rieman 1999; Nelson *et al.* 2002). As explained above (see the Background section), habitat for movement upstream and downstream is important for all life history forms for spawning, foraging, growth, access to rearing and overwintering areas, or thermal refugia (*e.g.*, spring-fed streams in late summer), avoidance of extreme environmental conditions, and other normal behavior. Successful migration requires biologically, physically, and chemically unobstructed routes for movement of individuals. Therefore, our method included considering information regarding habitat that is essential for movement into and out of larger rivers, because of the importance of such areas to the fluvial form of bull trout. We similarly identified habitat that is essential for movement between streams and lakes by adfluvial forms.

Migratory corridors also are important for movement between populations (*e.g.* Fraley and Sehapard 1989; Rieman and McIntyre 1993, Rieman *et al.* 1995, Dunham and Rieman 1999). Thus, in addition to considering areas important for migration within populations, our method also included considering information regarding migration corridors necessary to allow for genetic exchange between local populations. Corridors that provide for such

movements can support eventual recolonization of unoccupied areas or otherwise play a significant role in maintaining genetic diversity and metapopulation viability. (*See* Background section, above, for details.) Because these factors are important in identifying areas that are essential to the conservation of bull trout, our method included consideration of the various roles that migratory corridors have for bull trout.

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we are required to base our proposal on the best scientific data available, and to consider those physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These physical and biological features include, but are not limited to: space for individual and population growth, and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. All areas proposed as critical habitat for bull trout are within the historic geographic range of the species and contain one or more of these physical or biological features essential to the conservation of the species. The regulations also require that we include a list of known primary constituent elements with the critical habitat description. As described in the regulations, the primary constituent elements may include, but are not limited to, features such as spawning sites, feeding sites, and water quality or quantity. Following is a brief summary of information we considered in our identification of primary constituent elements. Additional and more detailed information is available in the administrative record for the proposed rule.

We determined the primary constituent elements for bull trout from studies of their habitat requirements, life-history characteristics, and population biology, as outlined above. These primary constituent elements are:

(1) Permanent water having low levels of contaminants such that normal reproduction, growth and survival are not inhibited;

(2) Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life history stage and form, geography, elevation, diurnal and seasonal variation, shade, such as that provided by riparian habitat, and local groundwater influence;

(3) Complex stream channels with features such as woody debris, side channels, pools, and undercut banks to provide a variety of depths, velocities, and instream structures;

(4) Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine substrate less than 0.63 cm (0.25 in) in diameter and minimal substrate embeddedness are characteristic of these conditions;

(5) A natural hydrograph, including peak, high, low, and base flows within historic ranges or, if regulated, a hydrograph that demonstrates the ability to support bull trout populations;

(6) Springs, seeps, groundwater sources, and subsurface water connectivity to contribute to water quality and quantity;

(7) Migratory corridors with minimal physical, biological, or chemical barriers between spawning, rearing, overwintering, and foraging habitats, including intermittent or seasonal barriers induced by high water temperatures or low flows;

(8) An abundant food base including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish; and

(9) Few or no predatory, interbreeding, or competitive nonnative species present.

The areas proposed as critical habitat for the Klamath River and Columbia River Basin DPSs of bull trout are designed to incorporate what is essential for their conservation. An area need not include all nine of the primary constitutent elements to qualify for designation as critical habitat.

Criteria Used To Identify Critical Habitat

The Draft Recovery Plan (USFWS 2002) identifies the specific recovery needs of the species and provides guidance for identifying areas that warrant critical habitat designation. As described below, this Draft Recovery Plan was used as the principal basis for identifying the critical habitat in this proposed designation. Use of the Draft Recovery Plan for this purpose raises significant issues about the scope and impact of this proposed designation. In particular, areas included in this proposal may not meet the statutory definition of critical habitat insofar as they may not be essential to the conservation of bull trout. We will re-evaluate the proposed rule based on public comment, peer review of the proposed rule and the Draft Recovery Plan, the economic analysis of the proposed rule and the public comments on that analysis, and other available information, to ensure that the designation accurately reflects habitat that is essential to the conservation of the species.

The draft recovery strategy focuses primarily on the maintenance (and, where needed, expansion) of existing local populations by: (1) Protecting sufficient amounts of spawning and rearing habitat in upper watershed areas; (2) providing suitable habitat conditions in downstream rivers and lakes to provide foraging and overwintering habitat for fluvial and adfluvial fish; and (3) sustaining (and in some cases reestablishing) movement corridors to maintain migratory routes and the potential for gene flow between local populations by maintaining habitat conditions that allow for fish passage.

Critical habitat units are patterned after recovery units identified in the Draft Recovery Plan (USFWS 2002) for the Klamath River and Columbia River population segments. Using the guidance from that plan, we identified habitat areas needed for the survival and recovery of bull trout. To be included as critical habitat, an area had to provide one or more of the following three functions: (1) Spawning, rearing, foraging, or overwintering habitat to support existing bull trout local populations; (2) movement corridors necessary for maintaining migratory life-history forms; and/or (3) suitable and historically occupied habitat that is essential for recovering existing local populations that have declined, or that is needed to reestablish local populations required for recovery.

Our proposal includes approximately 4,074 km (2,531 mi) of stream reaches and 12,176 ha (30,075 ac) of lake and reservoir surface area habitat determined to be essential to the conservation of the bull trout, but currently not known to be occupied. Although these specific areas are not known to be occupied, they are within the geographical area occupied by bull trout occupy. Areas with low levels of bull trout occupancy or where presence of the species is undetermined were included when they provided connectivity between areas of high-quality habitat, served as important migration corridors for fluvial or adfluvial fish, or were identified in the

Draft Recovery Plan (USFWS 2002) as necessary for local population expansion or reestablishment in order to achieve recovery, so that delisting can occur. Restoration of reproducing bull trout populations to additional portions of their historical range would significantly reduce the likelihood of extinction due to natural or human-caused factors that might otherwise further reduce population size and distribution. Thus, an integral component of the Draft Recovery Plan (USFWS 2002) is the selective reestablishment of secure, self-sustaining populations in certain areas where the species has apparently, but not necessarily conclusively, been extirpated. In this regard, we also note that some habitat areas that would not be considered essential if they were geographically isolated are, in fact, essential to the conservation of the species when situated in locations where they facilitate movement between local populations or otherwise play a significant role in maintaining metapopulation viability (*e.g.*, by providing sources of immigrants to recolonize adjacent habitat patches following periodic extirpation events) (Dunham and Rieman 1999). In addition, populations on the periphery of the species' range, or in atypical environments, are important for maintaining the genetic diversity of the species and could prove essential to the ability of the species to adapt to rapidly changing climatic and environmental conditions (Leary *et al.* 1993; Hard 1995).

A brief discussion of each area proposed for designation is provided in the critical habitat unit descriptions (below). Additional detailed documentation concerning the essential nature of these areas is contained in our administrative record.

Proposed critical habitat for bull trout was delineated using multiple sources including: The StreamNet GIS (Geographic Information System) database for Idaho, Oregon, Washington, and Montana; and State databases of bull trout distribution.

Managed Lands

As part of our process of developing this critical habitat proposal, we evaluated existing management plans to determine whether they provide sufficient protection and management for the bull trout and its habitat such that there is no need for additional special management considerations or protection of areas that otherwise would qualify as critical habitat. Section 3(5)(A)(i) of the Act defines critical habitat as areas on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection. Adequate special management or protection is provided by a legally operative plan that addresses the maintenance and improvement of essential habitat elements and that provides for the long-term conservation of the species. We consider a plan adequate when it: (1) Provides a conservation benefit to the species (*i.e.*, the plan must maintain or provide for an increase in the species' population, or the enhancement or restoration of its habitat within the area covered by the plan); (2) provides assurances that the management plan will be implemented (*i.e.*, those responsible for implementing the plan are capable of accomplishing the objectives, have an implementation schedule, and/or adequate funding for the management plan); and (3) provides assurances the conservation plan will be effective (*i.e.*, it identifies biological goals, has provisions for reporting progress, and is of a duration sufficient to implement the plan and achieve the plan's goals and objectives). If an area provides physical and biological features essential to the conservation of the species, and also is covered by a plan that meets these criteria, then such an area does not constitute critical habitat as defined by the Act because the primary constituent elements found there are not in need of special management.

Federal Public Lands (USFS and Bureau of Land Management)

Within the range of bull trout, the USFS and Bureau of Land Management (BLM) prepare land management plans which generally guide activities on the National Forests and BLM Districts. These plans provide some level of conservation benefit to species and the habitat they are known to occupy. However, current management goals are not sufficient to address areas of unknown occupancy which are proposed as critical habitat because we believe they are essential to conservation of the species.

Federal land management agencies routinely engage in land exchanges with non-Federal entities. These exchanges are often advantageous to both parties by providing, for example, harvestable timber for a private timber company and a consolidation of land holdings that will contribute to efficient future management by the Federal agency. Such exchanges complicate potential critical habitat exclusions based on existing management plans.

USFS Land and Resource Management Plans (LRMPs) and BLM Resource Management Plans (RMPs), as amended by the Interim Strategy for Managing Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana, and Portions of Nevada (INFISH), and the Interim Strategy for Managing Anadromous Fish-Producing Watersheds in Western Oregon and Washington, Idaho, and Portions of California (PACFISH), are fluid documents that may change, or not change as anticipated, as management emphasis and direction changes. For example: (1) PACFISH and INFISH were considered interim for a period of 2 years when they were created in 1998, yet they still are in place in 2002; (2) three National Forests in Idaho are currently engaged in informal consultation with the Service on revisions to their LRMPs with the vision of dropping or modifying PACFISH/INFISH requirements. We are unsure at this point as to the degree of aquatic protections that will be provided under the new plans; and (3) the Aquatic Conservation Strategy and other components of the Northwest Forest Plan (NWFP) contain aspects which are not always fully agreed upon by Federal agencies charged with implementation of the plan. For this reason, as well as to incorporate new information, the NWFP is managed adaptively to respond to new information and, as such, we are unsure as to the specific details of future management direction. Further, LRMPs and RMPs (including the NWFP) are general and programmatic in nature. All of the Federal agencies understand that more specific consultation at the site-specific level is required to determine project effects and meet the requirements of section 7(a)(2) of the Act. Therefore, the current existence and substance of these Federal land management plans do not provide assurances of their future implementation, or that specific project implementation in the future will reflect a comparable level of conservation benefits to bull trout.

Because of these circumstances, we cannot, at this time, find that management on these lands under Federal jurisdiction is adequate to preclude a proposed designation of critical habitat. Therefore, we have included areas within these Federal jurisdictions as part of the critical habitat proposal, and are seeking further information, through the public comment process, as to whether these areas should be retained or excluded from designation in the final rule (see Public Comments Solicited section).

Congressionally Designated Wilderness

Wilderness areas exist because of a Congressional mandate that began with passage of the Wilderness Act in 1964. In partnership with the public, wilderness managers have a responsibility to preserve an enduring resource of wilderness, where natural processes are allowed to operate freely. Non-commercial hunting, fishing, and trapping are allowed in most Bureau of Land Management, Fish and Wildlife Service, and Forest Service wilderness areas, but not those managed by the National Park Service. States are responsible for management of wildlife and fish, working together with the Federal agency land managers. Wildlife species may be introduced and fish species stocked in order to perpetuate or recover a threatened or endangered species, or to restore a native species that has been eliminated or reduced by human influence. Exotic species may not be stocked. Habitat may be manipulated only when it is necessary to correct conditions resulting from human influence or to protect threatened or endangered species. Research and management surveys are permitted if done in a manner compatible with the preservation of the wilderness resource.

Where previously established, livestock grazing is permitted to continue in wilderness, subject to grazing and other resource management requirements. Permittees are required to maintain range improvements necessary to the livestock operation or the protection of the range, such as fences and watering facilities. The use of motorized equipment is permitted where it occurred prior to the establishment of wilderness. Range improvements such as fences and watering holes may be made, when necessary to protect wilderness values and manage the range resource. Prescribed burning, noxious weed control, seeding, irrigation, fertilization, and liming are allowed where each activity was practiced prior to wilderness designation, when absolutely necessary for the livestock grazing operation, and where there would be no serious adverse impacts on wilderness values. Horses and packstock used by commercial outfitters and guides and private individuals are grazed under permit. Feed must be packed in when forage is inadequate, and each wilderness may set regulations on tethering of horses, party size limits, and use of native feed and pellets. Wild horses and burros are considered part of the natural system, where established at the time of designation.

Effective January 1, 1984, the Wilderness Act withdrew minerals within lands designated as wilderness from appropriation under the mining and mineral leasing laws, subject to valid existing rights. Holders of valid mineral leases retain the rights granted by the terms and conditions of the specific leases. Holders of valid mining claims are allowed to conduct operations necessary for the development, production, and processing of the mineral resource. Mechanized equipment, motorized access, and utility corridors may be used. However, these activities and the reclamation of all disturbed lands must minimize the impact on the surrounding wilderness character. Prior to designation as wilderness, mining claims may be made on public lands administered by the Bureau of Land Management. Mining operations may continue after designation, subject to strict regulation to protect wilderness characteristics.

Dams and water development structures in wilderness, other than those necessary for range and wildlife, can only be authorized by the President. However, existing reservoirs, ditches, water catchments, and related facilities for the control or use of water can be maintained or reconstructed if they meet a public need or are part of a valid existing right. Motorized equipment and mechanical transportation for maintenance of water development structure is not allowed unless practiced before the area was designated wilderness. Watershed restoration is permitted only where human activities have caused soil deterioration or other loss of wilderness values, where watershed conditions could cause unacceptable environmental impacts or threaten life or property outside the wilderness, and where natural revegetation is insufficient.

Although wilderness areas generally provide for management complementary with the conservation needs of bull trout, the provisions for mining, water development, and grazing relative to pre-existing claims and usage, and their effects on future site-specific actions that may occur, is not well understood. Because of this uncertainty, we cannot, at this time, determine the effectiveness of wilderness management on bull trout. Therefore, we have included areas within wilderness as part of the critical habitat proposal. We are seeking further information, through the public comment process, as to whether these areas should be retained or excluded from designation in the final rule (see Public Comments Solicited section).

Lands Covered Under Existing Habitat Conservation Plans (HCPs)

Section 10(a)(1)(B) of the Act authorizes the Service to issue to non-Federal entities a permit for the incidental take of endangered and threatened species. This permit allows a non-Federal landowner to proceed with an activity that is legal in all other respects, but that results in the incidental taking of a listed species (*i.e.*, take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity). The Act specifies that an application for an incidental take permit must be accompanied by a conservation plan, and specifies the content of such a plan. The purpose of such a habitat conservation plan, or HCP, is to describe and ensure that the effects of the permitted action on covered species are adequately minimized and mitigated and that the action does not appreciably reduce the survival and recovery of the species.

Within the area covered by Klamath River DPS, there are no HCPs involving bull trout. Within the range of the Columbia River population segment of bull trout, the Service has approved HCPs involving the Plum Creek Timber Company and the Washington Department of Natural Resources (WDNR). The Plum Creek Native Fish, Plum Creek I–90, and the WDNR HCPs have been developed, in part, to provide for the conservation needs of bull trout while also allowing for otherwise lawful timber management activities. The duration of the permits associated with the Plum Creek and WDNR HCPs ranges from 30 to 100 years. The permittees have the option, however, of terminating at any time if they so choose, with a sixty-day notice to the Service. Moreover, the permittees may retain their permits but sell some of their lands covered by an HCP. All of these HCPs contain provisions that allow buyers of lands covered by the HCP to assume the permit if they so desire.

The Plum Creek I–90 HCP includes provisions that: (1) Generally allow for the sale or exchange of lands with the U.S. Forest Service, with some specific limitations relative to implementation of the Northwest Forest Plan; (2) allow for the sale of any lands provided appropriate covenants or assurances are given by the acquiring party that such lands will be managed consistent with the goals and objectives of the HCP; and (3) allow for the sale of parcels not in excess of 640 acres to any private party as long as the cumulative total of all such transactions does not exceed 5

percent of the acreage covered by the permit and the cumulative total of all such transactions in any one township does not exceed 1,920 acres. The Plum Creek Native Fish HCP applies a proportionality ratio to land dispositions relative to three categories of dispositions: Positive, neutral, and negative in terms of conservation benefits to covered species. Plum Creek has committed to manage its land dispositions so that the cumulative total of dispositions stays within a predetermined range of proportionality. If, at the end of the term of the HCP, the proportionality balance is below the predetermined range limits, positive land disposition commitments must be applied to sufficient acreage within the project area to restore the balance.

The WDNR lands are maintained primarily for the purpose of growing and selling timber to finance State government, and the management of these lands also can include purchases, sales, and land exchanges. The WDNR HCP does not include incentives for placing conservation easements on some of the land that WDNR sells. The HCP allows WDNR to dispose of Permit lands at its sole discretion. However, if the cumulative impact of disposed lands would have a significant adverse effect on the covered species, the parties to the HCP are required to mutually amend the HCP to provide replacement mitigation.

We evaluated lands covered by these existing Habitat Conservation Plans to determine whether they are (1) occupied and essential to the conservation of the species; (2) in need of additional special management considerations; and (3) currently not known to be occupied but essential to the conservation of the species. We evaluated each HCP to determine whether it: (1) Provides a conservation benefit to the species; (2) provides assurances that the management plan will be implemented; and (3) provides assurances the plan will be effective. Approved and permitted HCPs are designed to ensure the long-term survival of covered species within the plan area. Where we have an approved HCP, the areas we ordinarily would designate as critical habitat for the covered species will normally be protected through the terms of the HCPs and their implementation agreements. These HCPs and implementation agreements include management measures and protections that are crafted to protect, restore, and enhance their value as habitat for covered species.

The issuance of a permit (under Section 10(a) of the Act) in association with an HCP application is subject to consultation under Section 7(a)(2) of the Act. While these consultations on permit issuance have not specifically addressed the issue of destruction or adverse modification of critical habitat for bull trout, they have addressed the very similar concept of jeopardy to bull trout in the plan area. Since these large regional HCPs address land use within the plan boundaries, habitat issues within the plan boundaries have been thoroughly addressed in the HCP and the consultation on the permit associated with the HCP. Our experience is that, under most circumstances, consultations under the jeopardy standard will reach the same result as consultations under the adverse modification standard. Common to both approaches is an appreciable detrimental effect on both survival and recovery of a listed species, in the case of critical habitat by reducing the value of the habitat so designated. Thus, actions satisfying the standard for adverse modification are nearly always found to also jeopardize the species concerned, and the existence of a critical habitat designation does not materially affect the outcome of consultation. Therefore, additional measures to protect the habitat from adverse modification are not likely to be required.

The Plum Creek I–90 and WDNR HCPs occur mostly in Western Washington, with minimal overlap (*i.e.*, lands adjacent to less than 50 stream miles for each Plan) with proposed critical habitat for the Columbia River DPS. The Plum Creek Native Fish HCP covers approximately 1.6 million acres, all within the range of the Columbia River DPS. Lands within this HCP occur adjacent to less than approximately 500 miles of streams reaches that we identified as proposed critical habitat.

We have reviewed the three HCPs within the Columbia River basin DPS of bull trout and we have determined that they do not require additional special management considerations to conserve bull trout. Therefore, these areas covered by an existing, legally operative incidental take permit issued for bull trout under section 10(a)(1)(B) of the Act are, by definition under Section 3(5)(A) of the Act, not included in this proposed designation of critical habitat.

As noted above, lands within these HCPs are subject to disposal (*e.g.*, through sale or exchange), subject to various sideboards included in each HCP. Proposed critical habitat does not include non-Federal lands covered by an incidental take permit for bull trout issued under section 10(a)(1)(B) of the Act for these HCPs as long as such permit, or a conservation easement providing comparable conservation benefits, remains legally operative on such lands.

We also considered exclusion of HCPs under subsection 4(b)(2) of the Act, which allows us to exclude areas from critical habitat designation where the benefits of exclusion outweigh the benefits of designation, provided the exclusion will not result in the extinction of the species. We believe that in most instances, the benefits of excluding HCPs from critical habitat designations will outweigh the benefits of including them. We believe this is the case in relation to the three HCPs that address bull trout within the Columbia River DPS.

The benefits of including HCP lands in critical habitat are normally small. The principal benefit of any designated critical habitat is that activities in such habitat that may affect it require consultation under section 7 of the Act if such actions involve a Federal nexus (*i.e.*, an action authorized, funded, or carried out by a Federal agency). Such consultation would ensure that adequate protection is provided to avoid adverse modification of critical habitat. Where HCPs are in place, our experience indicates that this benefit is small or non-existent.

Further, HCPs typically provide for greater conservation benefits to a covered species than section 7 consultations because HCPs assure the long term protection and management of a covered species and its habitat. Such assurances are typically not provided by section 7 consultations which, in contrast to HCPs, often do not commit the project proponent to long term special management or protections.

The development and implementation of HCPs provide other important conservation benefits, including the development of biological information to guide conservation efforts and assist in species recovery and the creation of innovative solutions to conserve species while allowing for commercial activity. The educational benefits of critical habitat, including informing the public of areas that are important for the long-term survival and conservation of the species, are essentially the same as those that would occur from the public notice and comment procedures required to establish an HCP, as well as the public participation that occurs in the development of many regional HCPs. For these reasons, then, we believe that designation of critical habitat normally has little benefit in areas covered by HCPs.

The benefits of excluding HCPs from being designated as critical habitat include relieving landowners, communities and counties of any

additional regulatory review that result from such a designation. Many HCPs, particularly large regional HCPs, take many years to develop and, upon completion, become regional conservation plans that are consistent with the recovery of covered species. Imposing an additional regulatory review after HCP completion may jeopardize conservation efforts and partnerships in many areas and could be viewed as a disincentive to those developing HCPs.

A related benefit of excluding HCP areas is that it would encourage the continued development of partnerships with HCP participants, including States, local governments, conservation organizations, and private landowners, that together can implement conservation actions we would be unable to accomplish alone. By excluding areas covered by HCPs from critical habitat designation, we preserve these partnerships and, we believe, set the stage for more effective conservation actions in the future.

In general, we believe the benefits of critical habitat designation to be small in areas covered by approved HCPs. We also believe that the benefits of excluding HCPs from designation are significant. Weighing the small benefits of inclusion against the benefits of exclusion, including the benefits of relieving property owners of an additional layer of approvals and regulation, together with the encouragement of conservation partnerships, would generally result in HCPs being excluded from critical habitat designation under section 4(b)(2) of the Act.

Tribal Lands

Please see the section ''Government-to-Government Relationship With Tribes'' for a discussion of proposed critical habitat in relation to Tribal lands.

Proposed Critical Habitat Designation

Within the geographical areas presently known to be occupied by the Klamath River and Columbia River Basin DPSs, we are proposing for designation only areas currently known to be essential to the conservation of bull trout. These areas already contain features and habitat characteristics that are necessary to sustain the species. We are only proposing designation of areas that currently have one or more of the primary constituent elements that provide essential life-cycle requisites of the species, as defined at 50 CFR 424.12(b). Moreover, certain areas with known occurrences of bull trout have not been proposed for designation as critical habitat. We did not propose critical habitat for some small scattered occurrences or habitats that are in highly fragmented areas or no longer have hydrologic conditions that are sufficient to maintain bull trout habitat, as we do not believe, based on the best available scientific information, that these areas are essential to the conservation of the species.

The proposed critical habitat areas described below constitute our best assessment at this time of the stream reaches, lakes, and reservoirs that are essential to the conservation of the Klamath River and Columbia River bull trout population segments. We are proposing designation of approximately 476 km (296 mi) of streams and 13,735 ha (33,939 ac) of lakes for the Klamath River DPS, and 29,251 km (18,175 mi) of streams and 201,850 ha (498,782 ac) of lakes and reservoirs for the Columbia River DPS. Our proposal includes approximately 4,074 km (2,531 mi) of stream reaches and 12,176 ha (30,075 ac) of lake and reservoir surface area habitat determined to be essential to the conservation of the bull trout, but that are not currently known to be occupied.

The lateral extent of critical habitat, for each proposed stream reach, is the width of the stream channel as defined by its bankfull elevation. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain (Rosgen 1996) and is reached at a discharge which generally has a recurrence interval of 1 to 2 years on the annual flood series (Leopold *et al.* 1992). Critical habitat extends from the bankfull elevation on one side of the stream channel to the bankfull elevation on the opposite side. If bankfull elevation is not evident on either bank, the ordinary high-water line as defined by the U.S. Army Corps of Engineers (Corps) in 33 CFR 329.11 shall be used to determine the lateral extent of critical habitat. Adjacent floodplains are not proposed as critical habitat. However, it should be recognized that the quality of aquatic habitat within stream channels is intrinsically related to the character of the floodplains and associated riparian zones, and human activities that occur outside the river channels can have demonstrable effects on physical and biological features of the aquatic environment. The lateral extent of proposed lakes and reservoirs is defined by the perimeter of the water body as mapped on standard 1:24,000 scale maps (comparable to the scale of a 7.5 minute U.S. Geological Survey Quadrangle topographic map).

The approximate amount of proposed critical habitat in the Klamath River Basin DPS, by State and adjacent landownership, is shown in Table 1.

TABLE 1.—APPROXIMATE LINEAR QUANTITY OF PROPOSED CRITICAL HABITAT (IN STREAM KILOMETERS (KM) AND MILES (MI)) AND SURFACE AREA OF LAKES (IN HECTARES (HA) AND ACRES(AC)), AND ADJACENT LANDOWNERSHIP PERCENTAGES FOR THE KLAMATH RIVER DPS

State	Streams (km)	Lakes (ha)	Federal (percent)	Tribal	Local/state	Private (percent)
OR	476 km (296 mi)	13,735 ha (33,939 ac)	55	n/a	n/a	45

The approximate amount of proposed critical habitat in the Columbia River Basin DPS, by State and adjacent landownership, is shown in Table 2.

TABLE 2.—APPROXIMATE LINEAR QUANTITY OF PROPOSED CRITICAL HABITAT (IN STREAM KLOMETERS (KM) AND MILES (MI)) AND SURFACE AREA OF LAKES AND RESERVOIRS (IN HECTARES (HA) AND ACRES(AC)) BY STATE, AND ADJACENT LANDOWNERSHIP PERCENTAGES FOR THE COLUMBIA RIVER DPS

State	Streams (km)	Lakes and reservoirs (ha)	Federal (percent)	Tribal (percent)	Local/State (percent)	Private (percent)
ID	14,416 km (8,958 mi)	83,219 ha (205,639 ac)	82	1	5	12

TABLE 2.—APPROXIMATE LINEAR QUANTITY OF PROPOSED CRITICAL HABITAT (IN STREAM KLOMETERS (KM) AND MILES (MI)) AND SURFACE AREA OF LAKES AND RESERVOIRS (IN HECTARES (HA) AND ACRES(AC)) BY STATE, AND ADJACENT LANDOWNERSHIP PERCENTAGES FOR THE COLUMBIA RIVER DPS—Continued

State	Streams (km)	Lakes and reservoirs (ha)	Federal (percent)	Tribal (percent)	Local/State (percent)	Private (percent)
MT	5,341 km (3,319 mi)	88,051 ha (217,577 ac)	60	1	5	34
OR	5,460 km (3,391 mi)	18,077 ha (44,670 ac)	49	4	1	46
WA	4,034 km (2,507 mi)	12,503 ha (30,896 ac)	39	3	4	54
Total	29,251 km (18,175 mi)	201,850 ha (498,782 ac).	58	2	4	36

Critical habitat includes bull trout habitat across the species' range in Idaho, Montana, Oregon, and Washington. Lands adjacent to proposed critical habitat are under private, State, Tribal, and Federal ownership, with Federal lands including lands managed by the USFS and BLM. Twenty-five critical habitat units have been delineated. The areas we are proposing as critical habitat, described below, constitute our best assessment of areas essential to the conservation of the Klamath and Columbia River distinct population segments of bull trout.

We are proposing critical habitat in 25 units that correspond to recovery units identified in the Draft Recovery Plan (USFWS 2002). Proposed critical habitat for the Klamath River DPS is entirely within Unit 1. Proposed critical habitat for the Columbia River DPS is in Units 2 though 25. Brief descriptions of each unit and the critical habitat subunits (CHSUs) within them, and the specific areas proposed for designation as critical habitat, are presented below. For ease of reference, the paragraph designations in parentheses at the beginning of each unit correspond with paragraph designations in the amendatory language at the end of this rule, which provide the legal descriptions (latitude and longitude coordinates) for each area proposed for designation (see Proposed Regulation Promulgation section).

The streams, lakes and reservoirs indicated below are generally described from the bottom to the top of a watershed within a proposed critical habitat unit or subunit. For example, river or stream ''A'' would be described from its mouth up to the first major tributary (stream ''B'') that is also being proposed as critical habitat. At that point, tributary stream ''B'' and any of its associated tributaries that are also being proposed would be described, again from the mouth of stream ''B'' upstream to either the next tributary being proposed or to the limit of proposed critical habitat within stream ''B''. Once this description is complete, the text again reverts to river/stream A and continues upstream, either to the next tributary being proposed (*e.g.* stream C) or to the upstream limit of proposed critical habitat in Stream A. This provides a ''roadmap'' that enables the reader to appreciate the extent of the proposal in a particular watershed or stream system, as well as to have the ability to work their way up from a landmark more likely to be familiar (*e.g.*, the mouth of the Tucannon River at its confluence with the Snake River) to locate a particular, generally more obscure tributary in the upper watershed. Together with the maps included with this proposed rule, readers should be able to easily locate where a stream of interest that is being proposed as bull trout critical habitat occurs on the landscape.

The legal descriptions provided in the regulatory portion of this proposed rule (see Proposed Regulation Promulgation) correspond to the critical habitat units and subunits described below. However, the legal descriptions of individual streams and lakes/reservoirs within each subunit paragraph are arranged in alphabetical order by stream or lake/reservoir name within a paragraph, whereas the descriptions within a paragraph in this preamble section are arranged as if one was working their way up from the bottom to the top of a watershed within a proposed stream network.

(5) Unit 1: Klamath River Basin

The Klamath River Basin is located in south-central Oregon and includes three critical habitat subunits: (1) Upper Klamath Lake CHSU in Klamath County; (2) Sycan Marsh CHSU in Klamath County; and (3) Upper Sprague River CHSU in Klamath and Lake counties. Total proposed critical habitat includes 475 km (295 mi) of streams representing 9.4 percent of the total stream lengths in the unit. Proposed critical habitat includes: 224.6 km (139.6 mi) of stream in 13 reaches, and 3,775 ha (9,327 ac) of lake in the Upper Klamath CHSU; 103.8 km (64.5 mi) of stream in 6 reaches, and 9,965 ha (24,625 ac) of marsh in the Sycan Marsh CHSU; and 146 km (91 mi) of stream in 10 reaches in the Upper Sprague CHSU.

(i) Upper Klamath Lake CHSU

Encompassing 170,289 ha (420,792 ac), the Upper Klamath Lake CHSU comprises of Upper Klamath Lake, Agency Lake, and their immediate major and minor tributaries. Landownership comprises: 84 percent Federal lands; 6 percent State or local government land; and 10 percent privately owned lands.

The Upper Klamath Lake CHSU currently supports three local populations of bull trout, with two considered essential to the conservation of the species—Threemile Creek and Sun Creek (USFWS 2002). The third population, Lost Creek in Crater Lake National Park, was established with transplanted fish to provide temporary refuge during restoration actions in the Park. To fully achieve recovery of bull trout in the Klamath Basin, the Draft Recovery Plan (USFWS 2002) requires five to seven local populations in the Upper Klamath Lake CHSU. The following stream segments are included in this critical habitat unit:

(A) Upper Klamath Lake Corridor, comprised of the streams and canals between Agency Straight at the north end of Upper Klamath Lake west to the Westside Road, north to the lower end of the Sevenmile Creek canyon, southeast along Sevenmile Creek and Sevenmile Canal to Agency Lake; and the circumference and body of Agency Lake. This includes the Sevenmile Canal from its confluence with Agency Lake upstream to its confluence with the West Canal and Sevenmile Creek (11.6 km (7.2 mi)); 11.7 km (7.3 mi) of Sevenmile Creek from its confluence with Sevenmile Canal and West Canal upstream to the beginning of the Sevenmile Creek canyon above the beaver ponds; the West Canal from its confluence with Agency Lake to its confluence with Sevenmile Canal (15.0 km (9.3 mi)); Crane Creek from its confluence with Fourmile Creek to its source springs at river kilometer (rkm) 6.1 (river mile (rmi) 3.8); Fourmile Creek from its confluence with the West

Canal to source springs at rkm 4.3 (rmi 2.7); Fourmile Slough from its confluence with the West Canal to its head near Crystal Springs at (3.5 km (2.2 mi)); Crystal Creek from its confluence with Upper Klamath Lake to its source springs at rkm 5.0 (rmi 3.1); Recreation Creek from its confluence with Upper Klamath Lake to its confluence with Crystal Creek at rkm 3.7 (rmi 2.3); and the entire 3,775 ha (9,327 ac) Agency Lake. These areas are essential to restoring migratory forms of bull trout in the Upper Klamath Lake core area and reestablishing connectivity among populations of bull trout in Rock, Cherry, Threemile, and Sevenmile Creeks on the west side of the upper Klamath Basin, and populations of bull trout in the Wood River drainage and Crater Lake National Park.

(B) Rock Creek from the lower limit of permanent water at Penn Creek upstream to its origin at Heavenly Twin Lake (9.2 km (5.7 mi)); and Cherry Creek from its confluence with Fourmile Creek to the upper limit of perennial water (15.5 km (9.6 mi)). This area, which is the focus of restoration and reestablishment efforts under the Draft Recovery Plan, is a key watershed for reintroduction of a bull trout population that is essential to the conservation of the species (USFWS 2002).

(C) Threemile Creek from its confluence with Crane Creek to the upper limit of permanent water (6.9 km (4.3 mi)). This spawning and rearing habitat supports an essential local population and is a source for bull trout colonization of other watersheds (USFWS 2002).

(D) The entire 30.3 km (20.7 mi) length of the Wood River; 12.0 km (7.5 mi) of rooked Creek from its confluence with Agency Lake to its source at rkm 14.5 (rmi 9.0); 5.0 km (3.1 mi) of Fort Creek from its confluence with Wood River upstream to the upper limit of permanent water; Annie Creek from its confluence with Wood River upstream 24.5 km (15.2 mi); and Middle Fork of Annie Creek from its confluence with the mainstem Annie Creek to the headwater springs (6.1 km (3.8 mi)). These are areas of spawning and rearing, and foraging, migratory and overwintering habitat. These areas supported bull trout historically (Buchanan 1997).

(E) Sun Creek from its confluence with Annie Creek at rkm 2.0 (rmi 1.2) to the upper limit of bull trout distribution in Sun Meadow at rkm 21.5 (rmi 13.4) (Ratliff and Howell 1992; Bokenica 1997). This spawning and rearing habitat supports an essential local population and is a source for bull trout colonization of other watersheds (USFWS 2002).

(ii) Sycan Marsh CHSU

Encompassing 81,818 ha (202,175 ac), the Sycan Marsh CHSU comprises the Sycan Marsh, its tributaries, and the Sycan River and its tributaries. Landownership comprises: 56 percent Federal lands and 44 percent privately owned lands.

The Sycan Marsh CHSU currently supports two local populations of bull trout considered essential to the conservation of the species—Long Creek and Coyote Creek (USFWS 2002). To achieve recovery of bull trout in the Klamath Basin, the Draft Recovery Plan (USFWS 2002) requires five to seven local populations in the Sycan Marsh CHSU.

(A) Sycan Marsh and Sycan River includes over 23,944 ha (59,166 ac) of the Sycan Marsh, and 31.0 km (19.3 mi) of the Sycan River from its confluence with the Sycan Marsh to the confluence with Rock Creek at rkm 103.2 (rmi 64.1). Portions of this area are currently occupied and other parts were historically inhabited by bull trout. This area is essential for reestablishing migratory forms of bull trout in the Sycan Marsh core area and reestablishing connectivity among populations in Long Creek, Coyote Creek, Rifle Creek, and Boulder Creek. The Sycan River from the confluence with Rock Creek at rkm 103.2 (rmi 64.1) upstream to its origins (11.7 km (7.3 mi)) supported bull trout historically (Ratliff and Howell 1992; Light *et al.* 1996), and is the focus of efforts to establish additional spawning populations of bull trout that are essential to the conservation of the species.

(B) Long Creek from the confluence with Sycan Marsh upstream to its source at rkm 19.6 (rmi 12.2); and 11.3 km (7.0 mi) of spawning and rearing habitat in Calahan Creek from its confluence with Long Creek at rkm 7.7 (rmi 4.8) to its source at Blue Buck Springs. This area is currently occupied by bull trout (Ratliff and Howell 1992; Light *et al.* 1996). This area is essential for maintaining one of the strongest bull trout populations remaining in the Klamath Basin. The area is the focus of restoration and reestablishment efforts as described in the Draft Recovery Plan, and as a relative ''stronghold,'' this area is a potential source of bull trout for colonization that is essential to restoring populations of other watersheds (USFWS 2002).

(C) Coyote Creek from the confluence with the Sycan Marsh 2.4 km (1.5 mi) below the crossing of USFS Road 27 upstream to the upper limit of permanent water at rkm 11.2 (rmi 7.0). The area supports one of only 10 extant populations of bull trout in the Klamath Basin and one of only two in this CHSU. It is the focus of restoration and reestablishment efforts to achieve recovery for this species (USFWS 2002) and is essential to the conservation of the species.

(D) Rifle Creek from the confluence with the Sycan River at rkm 97.7 (rmi 60.7) upstream 4.0 km (2.5 mi) to its origins; the entire length of Boulder Creek from its confluence with the Sycan River at rkm 109.8 (rmi 68.2) upstream 2.5 km (1.5 mi); and South Fork Sycan River from its confluence with the Sycan River at rkm 108.8 (rmi 67.6) upstream 6.1 km (3.8 mi) to its origins. These areas supported bull trout historically (Ratliff and Howell 1992; Light *et al.* 1996), and are the focus of efforts to establish additional spawning populations of bull trout that are essential to the conservation of the species.

(iii) Upper Sprague River CHSU

Encompassing 83,810 ha (207,099 ac), the Upper Sprague River CHSU comprises the drainages of the North and South Forks of the Sprague River and their tributaries. Landownership comprises: 56 percent Federal lands and 44 percent privately owned lands.

The Upper Sprague River CHSU currently supports five local populations of bull trout considered essential to the conservation of the species: Boulder/Dixon Creek; Sheepy Creek; Deming Creek; Brownsworth Creek; and Leonard Creek. A remnant fluvial population exists in the North Fork of the Sprague River (USFWS 2002). To fully achieve recovery of bull trout in the Klamath Basin, the Draft Recovery Plan (USFWS 2002) calls for a total of 7 to 10 local populations in the Upper Sprague River CHSU.

(A) North Fork Sprague River from ''the Elbow'' 3.7 km (2.3 mi) below the confluence of Yaden Creek at rkm 18.0 (rmi 11.2) upstream to the confluence of Blue Lake Creek (31.6 km (19.6 mi)); Boulder Creek from its confluence with the North Fork Sprague River at rkm 24.1 (rmi 15.0) upstream 7.7 km (4.8 mi); Dixon Creek from its confluence with Boulder Creek at rkm 1.2 (rmi 0.7) upstream to its origin (2.2 km (1.4 mi)); and an unnamed tributary to Dixon Creek from the confluence upstream 1.2 km (0.8 mi) to its origin. Bull trout currently occupy the tributaries and at least one mainstem reach of the river (Oregon Chapter of the American Fisheries Society (OCAFS) 1993, Ratliff and Howell 1992; Light *et al.* 1996, J.

auner, Oregon Department of Fish and Wildlife (ODFW), pers. Comm., 1999; R. Smith, ODFW, pers. Comm. 2001). The area supports one of only 10 extant populations of bull trout in the Klamath Basin and one of only five populations in this CHSU, all of which are essential to the conservation of the species. The area is the focus of restoration and reestablishment efforts as described in the Draft Recovery Plan, and as a relative ''stronghold,'' this area is a potential source of bull trout for colonization that is essential to restoring populations of other watersheds (USFWS 2002).

(B) Sheepy Creek from its confluence with the North Fork Sprague at rkm 26.8 (rmi 16.6) to its source springs (5.3 km (3.3 mi)). The area supports one of only 10 extant populations of bull trout in the Klamath Basin and one of only five populations in this CHSU, all of which are essential to the conservation of the species. The area is the focus of restoration and reestablishment efforts as described in the Draft Recovery Plan, and as a relative ''stronghold,'' this area is a potential source of bull trout for colonization that is essential to restoring populations of other watersheds (USFWS 2002).

(C) Gearhart Creek from its confluence with the North Fork Sprague at rkm 32.6 (rmi 20.2) upstream to Gearhart Marsh (9.0 km (5.6 mi)) (above Gearhart Marsh flows become intermittent; Hole Creek from its confluence with Gearhart Creek at rkm 1.9 (rmi 1.2) upstream to the upper limit of permanent water (3.3 km (2.0 mi)); Nottin Creek from its confluence with Gearhart Creek at rkm 1.7 (rmi 1.1) upstream to the upper limit of permanent water 5.3 km (3.3 m); and School Creek from its confluence with the North Fork Sprague River at rkm 43.4 (rmi 27.0) to its origins (7.0 km (4.3 mi)). This area is the focus of efforts to reestablish additional spawning populations of bull trout essential to the conservation of the species, as described in the Draft Recovery Plan (USFWS 2002).

(D) Dead Cow Creek from its confluence with the North Fork Sprague River at rkm 46.9 (rmi 29.1) upstream 6.6 km (4.1 mi); and Gold Creek from its confluence with Dead Cow Creek at rkm 1.5 (rmi 0.9) upstream 2.9 km (1.8 mi). The Dead Cow drainage (Dead Cow and Gold creeks) supported bull trout historically. This area is the focus of efforts to reestablish additional spawning populations of bull trout essential to the conservation of the species, as described in the Draft Recovery Plan (USFWS 2002).

(E) The entire length of Deming Creek from its confluence with Anderson Field to its headwaters at rkm 7.8 (rmi 4.8). Deming Creek is currently inhabited by bull trout and is the largest remaining local population in the Klamath Basin (Ratliff and Howell 1992; Light *et al.* 1996). The area supports the largest of only 10 populations of bull trout in the Klamath Basin and the largest of only five populations in this CHSU, all of which are essential to the conservation of the species. The area is the focus of restoration and reestablishment efforts as described in the Draft Recovery Plan, and as a relative ''stronghold,'' this area is a potential source of bull trout for colonization that is essential to restoring populations of other watersheds (USFWS 2002).

(F) Lower South Fork Sprague River from the confluence of Brownsworth Creek at rkm 23.0 (rmi 14.3) upstream 21.7 km (13.5 mi) to the confluence of Camp Creek; Camp Creek from its confluence with the South Fork Sprague River at rkm 44.7 (rmi 27.8) to its origin (5.0 km (3.1 mi)); Corral Creek from its confluence with the South Fork Sprague River at rkm 46.3 (rmi 28.8) to its origin (4.5 km (2.8 mi)); Upper South Fork Sprague River from the confluence with Camp Creek at rkm 44.7 (rmi 27.8) upstream to its source at rkm 50.3 (rmi 31.2) (5.6 km (3.5 mi)); and the entire length of Brownsworth Creek from its confluence with the South Fork Sprague River upstream 13.3 km (8.8 mi) to the upper limit of permanent water. These areas are currently occupied by an essential local population (OCASF 1993; Light *et al.* 1996; Buchanan *et al.*1997; USFWS 2002). This area is the focus of efforts to reestablish additional spawning populations of bull trout essential to the conservation of the species, as described in the Draft Recovery Plan (USFWS 2002).

(G) Leonard Creek from its confluence with Brownsworth Creek at rkm 7.0 (rmi 4.3) upstream to its source. Leonard Creek is currently inhabited by bull trout (Ratliff and Howell 1992; Light *et al.* 1996). The area supports one of only 10 extant populations of bull trout in the Klamath Basin and one of only five populations in this CHSU, all of which are essential to the conservation of the species. The area is the focus of restoration and reestablishment efforts as described in the Draft Recovery Plan, and as a relative ''stronghold,'' this area is a potential source of bull trout for colonization that is essential to restoring populations of other watersheds (USFWS 2002).

(6) Unit 2: Clark Fork River Basin

The Clark Fork River Basin unit includes 12 CHSUs, organized primarily on the basis of major watersheds. It includes most of western Montana and the panhandle portion of northern Idaho. The summary of landownership and extent of proposed critical habitat are presented with each CHSU description.

(i) Lake Pend Oreille CHSU

The Lake Pend Oreille CHSU incorporates all waters in the Clark Fork River drainage downstream from Cabinet Gorge Dam (near the Montana/Idaho border), including all direct tributaries to Lake Pend Oreille, the lower portion of the Priest River drainage (downstream from Priest Lake Dam), and the Pend Oreille River (the impounded downstream arm of Lake Pend Oreille) downstream to the crest of Albeni Falls Dam. The CHSU is almost entirely within the State of Idaho in Boundary, Bonner, and Kootenai counties. A total of 286 km (178 mi) of 27 streams and the 38,304 ha (94,650 ac) surface area of Lake Pend Oreille are proposed for designation as critical habitat for bull trout. Landownership along the streams is approximately 36 percent Federal, 14 percent State, and 50 percent private. Lakeshore ownership has not been quantified, but approximately half of it is private with the other half mostly on Federal (National Forest) lands. Bull trout local populations in this CHSU include Lower Priest River, Pack River, Grouse Creek, Trestle Creek, Gold Creek, North Gold Creek, Granite Creek, Johnson Creek, Lightning Creek Complex, Twin Creek, and Clark Fork River, all of which are considered essential for recovery of the species (USFWS 2002).

(A) Lake Pend Oreille totals about 38,304 ha (94,650 ac). The best available scientific information indicates that most bull trout in the Lake Pend Oreille CHSU are migratory and adfluvial, using the lake for a portion of their life cycle (Panhandle Bull Trout Technical Advisory Team (PBTTAT) 1998a).

(B) The lower Priest River from its confluence with the Pend Oreille River (the impounded downstream arm of Lake Pend Oreille) upstream 34.4 km (21.4 mi) to the confluence with the East River provides foraging, migratory, and overwintering (FMO) habitat connecting spawning areas with Lake Pend Oreille. The East River from its confluence with the Priest River upstream 4.0 km (2.5 mi), and the Middle Fork East River from its confluence with the East River upstream 15.5 km (9.6 mi) provide spawning and rearing habitat for primarily migratory forms of bull trout. Tarlac Creek from its confluence with the Middle Fork East River upstream 5.3 km (3.3 mi) to the headwaters, and

Uleda Creek from its confluence with the Middle Fork East River upstream 5.9 km (3.7 mi) provide spawning and rearing habitat for bull trout that are likely resident forms.

(C) The Pack River from its confluence with Lake Pend Oreille upstream 64.1 km (39.8 mi) contains FMO habitat in the lower reaches, and spawning and spawning and rearing habitat in the upper reaches for the Pack River local population of bull trout.

(D) Grouse Creek from its confluence with the Pack River upstream 26.7 km (16.6 mi) to the headwaters contains FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. North Fork Grouse Creek from its confluence with Grouse Creek upstream 14.8 km (9.2 mi) to the headwaters provides spawning and rearing habitat.

(E) Trestle Creek from its confluence with Lake Pend Oreille upstream 14.4 km (8.9 mi) provides the most productive spawning and rearing habitat in the Lake Pend Oreille CHSU.

(F) Gold Creek from its confluence with Lake Pend Oreille upstream 2.7 km (1.7 mi), West Gold Creek from its confluence with Gold Creek upstream 2.3 km (1.4 mi), and North Gold Creek from its confluence with Lake Pend Oreille upstream 2.0 km (1.3 mi) provide spawning and rearing habitat for the Gold Creek bull trout local population complex. Gold Creek is considered the second most important bull trout spawning stream in the Lake Pend Oreille critical habitat subunit (PBTTAT 1998a)

(G) Granite Creek from its confluence with Lake Pend Oreille upstream 10.1 km (6.3 mi), Sullivan Springs from its confluence with Granite Creek upstream 2.1 km (1.3 mi), and Dry Gulch from its confluence with Granite Creek upstream 1.7 km (1.0 mi) provide spawning and rearing habitat for the Granite Creek population complex.

(H) Johnson Creek from its confluence with the south channel of the Clark Fork River delta at the confluence with Lake Pend Oreille upstream 1.2 km (0.7 mi) provides spawning and rearing habitat for the Johnson Creek local population.

(I) The Clark Fork River from its confluence with Lake Pend Oreille upstream 14.6 km (9.1 mi) to Cabinet Gorge Dam provides FMO habitat between Lake Pend Oreille and upstream local populations in Lightning and Twin creeks.

(J) Lightning Creek from its confluence with the Clark Fork River upstream 29.5 km (18.3 mi) to a barrier falls provides FMO habitat in the lower reaches below the confluence with East Fork Creek, and spawning and rearing habitat in the upper reaches above this point. Morris Creek from its confluence with Lightning Creek upstream 3.3 km (2.1 mi), East Fork Creek from its confluence with Lightning Creek upstream 6.5 km (4.1 mi), Savage Creek from its confluence with East Fork Creek upstream 5.9 km (3.7 mi), Char Creek from its confluence with East Fork Creek upstream 3.4 km (2.1 mi), Porcupine Creek from its confluence with Lightning Creek upstream 3.0 km (1.9 mi), Wellington Creek from its confluence with Lightning Creek upstream 1.0 km (0.6 mi), and Rattle Creek from its confluence with Lightning Creek upstream 6.0 km (3.7 mi) provide spawning and rearing habitat for the Lightning Creek population complex (Lake Pend Oreille Watershed Advisory Group 1999).

(K) Dry Creek from its confluence with the Clark Fork River upstream 0.1 km (0.06 mi) to the confluence with Twin Creek provides a migratory connection between Clark Fork River and Twin Creek. Twin Creek from its confluence with Dry Creek upstream 3.9 km (2.4 mi) provides spawning and rearing habitat for the Twin Creek local population of bull trout.

(ii) Lower Clark Fork River CHSU

The Lower Clark Fork River CHSU includes the three mainstem Clark Fork River impoundments (Cabinet Gorge, Noxon Rapids, and Thompson Falls reservoirs), the Clark Fork River between reservoirs and upstream to the confluence of the Flathead River, the lower Flathead River drainage downstream from Kerr Dam, and all tributaries to these waters. With the exception of the lower boundary at Cabinet Gorge Dam (in Bonner County, Idaho), nearly all the CHSU is located in the northwestern corner of Montana (Sanders, Lake, and Missoula counties).

Major portions of this CHSU, including the entire lower Flathead River drainage, are inside the boundaries of the Flathead Indian Reservation, and fall under the jurisdiction of the Confederated Salish and Kootenai Tribes (CSKT). There are 13 local populations of bull trout in this CHSU: Rock Creek, Bull River, Prospect Creek, Graves Creek, Vermilion River, Fishtrap Creek, West Fork Thompson River, Post Creek, Mission Creek, Dry Creek, and Jocko River, all of which are essential to the conservation of the species.

A total of 503 km (312 mi) of 24 streams and 4,862 ha (12,014 ac) of lake surface area in five reservoirs (Cabinet Gorge, Noxon Rapids, Mission, McDonald, and Tabor) is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 31 percent Federal, 1 percent State, 13 percent CSKT Tribal, and 55 percent private. Landownership on the reservoir shoreline has not been determined, but its mostly private land along the two large reservoirs with less than 25 percent as National Forest. The three small reservoirs are completely surrounded by CSKT Tribal Lands.

(A) Cabinet Gorge Reservoir (Clark Fork River), 1,295 ha (3,200 ac) at full pool, provides FMO habitat for the Bull River and Rock Creek local populations of bull trout (Pratt and Huston 1993).

(B) The Bull River from its confluence with Cabinet Gorge Reservoir (Clark Fork River) upstream 14.3 km (8.9 mi) to the confluence with the South and East forks provides FMO habitat for upstream local populations. Copper Creek from its confluence with the Bull River upstream 7.4 km (4.6 mi) to the headwaters provides rearing habitat (MBTSG 1996a). The Bull River East Fork from its mouth upstream 12.8 km (8 mi) and the Bull River South Fork from its mouth upstream 29.8 km (18.6 mi) provide spawning and rearing habitat for the Bull River local population (MBTSG 1996a).

(C) Rock Creek from its confluence with Cabinet Gorge Reservoir (Clark Fork River) upstream 11.4 km (7.1 mi) to a natural barrier provides spawning and rearing habitat for the Rock Creek local population.

(D) Noxon Rapids Reservoir (Clark Fork River), 3,237 ha (8,000 ac) at full pool, provides FMO habitat for low abundance local populations in the reservoir tributaries (Pratt and Huston 1993; MBTSG 1996a).

(E) The Vermilion River from its confluence with Noxon Rapids Reservoir (Clark Fork River) upstream 12.3 km (7.6 mi) to a natural barrier at Vermilion Falls provides important spawning and rearing habitat for the Vermilion River local population. Graves Creek from its confluence with Noxon Rapids Reservoir upstream 5.0 km (3.1 mi) to a natural barrier, Prospect Creek from its confluence with Noxon Rapids Reservoir upstream 12.3 km (7.6 mi), Crow Creek from its confluence with Prospect Creek upstream 2.0 km (1.2 mi), and Crow Creek East Fork from its confluence with Crow Creek upstream 5.5 km (3.4 mi) all provide spawning and rearing habitat as well (Pratt and Huston 1993; MBTSG 1996a).

(F) The Clark Fork River upstream 93.3 km (58.0 mi) from the head of Noxon Rapids Reservoir to the confluence with the Flathead River provides FMO habitat for tributary

populations of bull trout (Pratt and Huston 1993).

(G) The Thompson River from its confluence with the Clark Fork River upstream 32.3 km (20.0 mi) contains FMO habitat. West Fork Thompson River from its mouth upstream 8.0 km (5.0 mi) to the confluence of Lakes Creek; Fishtrap Creek from its confluence with the Thompson River upstream 17.0 km (10.5 mi) to the confluence with Fishtrap Creek West Fork, Beatrice Creek from its confluence with Fishtrap Creek upstream 8.5 km (5.3 mi) to its headwaters, and Fishtrap Creek West Fork from its mouth upstream 10.2 km (6.4 mi) provide spawning and rearing habitat necessary for the recovered distribution of bull trout (USFWS 2002). Bull trout in the West Fork Thompson River are categorized as being among the strongest remaining populations in the Thompson River basin (MBTSG 1996d).

(H) The Flathead River from the confluence with the Clark Fork River (about 60 km (37 mi) upstream from Thompson Falls Dam) upstream to the confluence with Mission Creek is occupied by bull trout at low abundance levels (MBTSG 1996d), and provides FMO habitat necessary for the recovered distribution of bull trout (USFWS 2002), including maintaining populations and the migratory life history form essential to the long-term conservation of bull trout.

(I) The Jocko River from its confluence with the Flathead River upstream 47.0 km (29.2 mi) to the confluence with the North Fork Jocko River provides FMO habitat. The North Fork Jocko River from its mouth upstream 9.9 km (6.1 mi) to a natural barrier, the South Fork Jocko River from its mouth upstream 15.0 km (9.3 mi) to a natural barrier, and the Middle Fork Jocko River from its mouth upstream 14.2 km (8.8 mi) are occupied, and provide spawning and rearing habitat for the Jocko River local population. Together these areas provide habitat necessary for the recovered distribution of bull trout (USFWS 2002), including maintaining populations and the migratory life history form essential to the long-term conservation of bull trout.

(J) Mission Creek from its confluence with the Flathead River upstream 34.8 km (21.7 mi) to Mission Dam, Post Creek from its confluence with Mission Creek upstream 26.1 km (16.2 mi) to a manmade barrier at McDonald Lake, and Dry Creek from its confluence with Mission Creek upstream 14.2 km (8.8 mi) to a manmade barrier at Tabor Reservoir are occupied, at a minimum, by migratory bull trout from the reservoirs and lake (MBTSG 1996d), and provide FMO habitat necessary for the recovered distribution of bull trout (USFWS 2002), including maintaining populations and the migratory life history form essential to the conservation of bull trout. These creeks also provide occupied spawning and rearing habitat above the reservoirs and lake (MBTSG 1996d). Mission Creek spawning and rearing habitat extends upstream approximately 1.6 km (1.0 mi) above Mission Reservoir to a manmade barrier. Post Creek spawning and rearing habitat extends upstream approximately 3.2 km (2 mi) above McDonald Lake to a natural barrier. Dry Creek spawning and rearing habitat extends upstream approximately 0.8 km (0.5 mi) above Tabor Reservoir to a natural barrier. McDonald Reservoir (approximately 101 ha (250 ac), when full), Mission Reservoir (approximately 117 ha (289 ac), when full), and Tabor Reservoir (St. Mary Lake) (approximately 111 ha (274 ac), when full) provide FMO habitat for the Post Creek, Mission Creek, and Dry Creek local populations, respectively (MBTSG 1996d).

(iii) Middle Clark Fork River CHSU

The Middle Clark Fork River CHSU includes the mainstem of the Clark Fork River in western Montana and all tributary watersheds, from the confluence of the Flathead River upstream to the base of Milltown Dam, except for the Bitterroot River drainage. A total of 622 km (386 mi) of 28 streams is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 51 percent Federal, 3 percent State, and 46 percent private, all occurring in Mineral and Missoula counties, Montana.

(A) The Clark Fork River from the confluence with the Flathead River upstream approximately 192.1 km (119.4 mi) to Milltown Dam provides historically occupied FMO habitat that is still currently occupied, but at very low abundance levels (Pratt and Huston 1993;MBTSG 1996d). This reach is important to provide for the recovered distribution of bull trout (USFWS 2002), including the maintenance of existing populations and the migratory life history form essential to the conservation of bull trout.

(B) The St. Regis River from its confluence with the Clark Fork River upstream 62.1 km (38.6 mi) to its headwaters provides FMO habitat in the lower reaches up to Twelvemile Creek, and spawning and rearing habitat in the upper reaches. Little Joe Creek from its confluence with the St. Regis River upstream 4.0 km (2.5 mi) to its forks; South Fork Little Joe Creek from its mouth upstream 16.3 km (10.1 mi) to its headwaters; North Fork Little Joe Creek from its mouth upstream 17.2 km (10.7 mi) to its headwaters; Ward Creek from its confluence with the St. Regis River upstream 12.3 km (7.6 mi) to its headwaters; Twelvemile Creek from its confluence with the St. Regis River upstream 21.6 km (13.4 mi) to its headwaters; Deer Creek from its confluence with the St. Regis River upstream 6.6 km (4.1 mi); Big Creek from its confluence with the St. Regis River upstream 5.4 km (3.4 mi) to its forks; East Fork Big Creek from its mouth upstream 9.6 km (5.9 mi) to its headwaters; Middle Fork Big Creek from its mouth upstream 8.0 km (5.0 mi); and West Fork Big Creek from its mouth upstream 9.2 km (5.7 mi) provide spawning and rearing habitat for the St Regis River local population complex of bull trout (MBTSG 1996d).

(C) Cedar Creek from its confluence with the Clark Fork River upstream 24.7 km (15.3 mi), Oregon Gulch from its confluence with Cedar Creek upstream 4.5 km (2.8 mi), and Lost Creek from its confluence with Oregon Gulch upstream 11.4 km (7.1 mi) provide spawning and rearing habitat for the Cedar Creek local population of bull trout (MBTSG 1996d), as well as to provide for the recovered distribution of bull trout (USFWS 2002).

(D) Trout Creek from its confluence with the Clark Fork River upstream 23.6 km (14.7 mi) contains spawning and rearing habitat (MBTSG 1996d) for the Trout Creek local population.

(E) Fish Creek from its confluence with the Clark Fork River upstream 14.7 km (9.1 mi) to its forks provides FMO habitat to upstream bull trout. North Fork Fish Creek from its mouth upstream 16.1 km (10.0 mi); Straight Creek from its confluence with North Fork Fish Creek upstream 13.1 km (8.1 mi) to its headwaters; West Fork Fish Creek from its confluence with Fish Creek upstream 28.2 km (17.5 mi); Indian Creek from its confluence with West Fork Fish Creek upstream 2.1 km (1.3 mi); South Fork Fish Creek from its confluence with Fish Creek upstream 25.1 km (15.6 mi) to its headwaters; Surveyors Creek from its confluence with South Fork Fish Creek upstream 6.6 km (4.1 mi) to its headwaters; Cache Creek from its confluence with South Fork Fish Creek upstream 15.8 km (9.8 mi); Montana Creek from its confluence with Cache Creek upstream 9.2 km (5.7 mi) to its headwaters; and White Creek from its confluence with Cache Creek upstream 7.3 km (4.5 mi) to its headwaters provide spawning and rearing habitat for the Fish Creek local population complex (MBTSG 1996d).

(F) Petty Creek from its confluence with the Clark Fork River upstream 18.6 km (11.6 mi) provides spawning and rearing habitat for the Petty Creek local population (MBTSG 1996d).

(G) Rattlesnake Creek from its confluence with the Clark Fork River upstream 37.5 km (23.3 mi) to the headwaters provides FMO habitat in the lower reaches (up to Mountain Water Company Dam), and spawning and rearing habitat above that point (MBTSG 1996d).

(iv) Upper Clark Fork River CHSU

The Upper Clark Fork River CHSU includes the entire Clark Fork River in western Montana upstream from Milltown Dam (near Missoula), with the exception of the Blackfoot River, Clearwater River, and Rock Creek drainages. A total of 484 km (301 mi) of 13 streams is proposed for designation as critical habitat for bull trout in this CHSU in Missoula, Granite, Powell, and Deer Lodge counties. Landownership adjacent to proposed stream segments is approximately 25 percent Federal, 3 percent State, and 72 percent private.

(A) The Clark Fork River from Milltown Dam upstream approximately 185 km (115 mi) to the headwaters at the confluence with Warm Springs Creek provides FMO habitat for the recovered distribution of bull trout (USFWS 2002). This area is important to provide for the maintenance of existing populations and the migratory life history form essential to the long-term conservation of bull trout.

(B) Harvey Creek from its confluence with the Clark Fork River upstream 25.0 km (15.6 mi) to its headwaters provides FMO habitat below a manmade barrier about 0.4 km (0.2 mi) above the confluence, and spawning and rearing habitat above that point for the resident Harvey Creek local population (MBTSG 1995e).

(C) Flint Creek from its confluence with the Clark Fork River upstream 25.9 km (16.1 mi) to its confluence with Boulder Creek is occupied at low abundance but provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches (MBTSG 1995e).

(D) Boulder Creek from its confluence with Flint Creek upstream 22.6 km (14.0 mi), and South Boulder Creek from its confluence with Flint Creek upstream 13.7 km (8.5 mi) provide spawning and rearing habitat (MBTSG 1995e).

(E) The Little Blackfoot River from its confluence with the Clark Fork River upstream 76.8 km (47.7 mi) to its headwaters provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. This river is necessary both to provide for the recovered distribution of bull trout as well as to maintain spawning populations in the upper reaches (MBTSG 1995e; USFWS 2002).

(F) Racetrack Creek from its confluence with the Clark Fork River upstream19.9 km (12.4 mi) to a natural barrier near the junction of Granite Creek provides spawning and rearing habitat for the Racetrack Creek local population (MBTSG 1995e).

(G) Warm Springs Creek from its confluence with the Clark Fork River upstream 52.4 km (32.5 mi) provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches to support both the Warm Springs local population complex, and provide for the recovered distribution of bull trout (USFWS 2002), including maintaining existing populations and the migratory life history form essential to the long-term conservation of bull trout. Barker Creek from its confluence with Warm Springs Creek upstream 8.0 km (5.0 mi) to its headwaters at Barker Lake, Foster Creek from its confluence with Warm Springs Creek upstream 15.8 km (9.8 mi) to its headwaters, Twin Lakes Creek from its confluence with Warm Springs Creek upstream16.2 km (10.1 mi) to its headwaters, Cable Creek from its confluence with Warm Springs Creek upstream 5.0 km (3.1 mi) to its headwaters, and Storm Lake Creek from its confluence with Cable Creek upstream17.5 km (10.9 mi) provide spawning and rearing habitat to support the Warm Springs population complex, as well as provide for the recovered distribution of bull trout (MBTSG 1995e; USFWS 2002).

(v) Priest Lakes and River CHSU

The Priest Lakes and River CHSU0 includes the entire drainage of the Priest River upstream from Priest Lake Dam, including Priest and Upper Priest lakes, in Boundary and Bonner counties, Idaho. The extreme headwaters lie in British Columbia, Canada, and the headwaters of several west side drainages are in the State of Washington. A total of 267 km (430 mi) of 19 streams and 9,970 ha (24,636 ac) of lake surface area in Priest and Upper Priest lakes is proposed for designation as critical habitat for bull trout. Landownership along the streams is approximately 58 percent Federal, 33 percent State, and 9 percent private. Landownership along the lake shores has not been quantified, but Priest Lake is approximately 75 percent private land, or leased State or Federal land with cabins and home sites. The rest is undeveloped National Forest, as is the entire shoreline of Upper Priest Lake.

(A) The Upper Priest River from a waterfall approximately 1.0 km (0.6 mi) downstream of the border between Idaho and Canada upstream 31.6 km (19.6 mi) to the confluence with Upper Priest Lake; Rock Creek from the confluence with the Upper Priest River upstream 6.1 km (3.8 mi) to its headwaters; Lime Creek from the confluence with the Upper Priest River upstream 6.4 km (4.0 mi) to its headwaters; and Cedar Creek from the confluence with the Upper Priest River upstream 6.8 km (4.2 mi) to its headwaters provide spawning and rearing habitat for adfluvial bull trout inhabiting Upper Priest Lake (PBTTAT 1998b; USFWS 2002).

(B) Hughes Fork from the confluence with the Upper Priest River upstream 22.7 km (14.1 mi) to its headwaters, and Gold Creek from the confluence with Hughes Fork upstream 12.6 km (7.8 mi) to its headwaters provide spawning and rearing habitat for adfluvial bull trout inhabiting Upper Priest Lake (Hughes Fork local population) (PBTTAT 1998b; USFWS 2002).

(C) Upper Priest Lake (542 ha (1,338 ac)) provides FMO habitat supporting the Upper Priest Lake, Hughes Fork, and Trapper Creek local populations of bull trout (PBTTAT 1998b).

(D) Trapper Creek from the confluence with Upper Priest Lake upstream 12.7 km (7.9 mi) to its headwaters provides spawning and rearing habitat for the Trapper Creek local population (PBTTAT 1998b; USFWS 2002).

(E) Priest River Thorofare, a 4.3 km (2.7 mi) channel between Upper Priest and Priest Lakes provides FMO habitat connecting bull trout populations in the Priest Lakes basin. Priest Lake (9,429 ha (23,300 ac) provides FMO habitat for dwindling numbers of adfluvial bull trout that spawn and rear in the lake's tributaries (Pratt and Huston 1993).

(F) Lion Creek from the confluence with Priest Lake upstream 18.2 km (11.3 mi) to its headwaters, and South Fork Lion Creek from its confluence with Lion Creek upstream 8.0 km (5.0 mi) to its headwaters contain spawning and rearing habitat for the Lion Creek local population of bull trout (PBTTAT 1998b; USFWS 2002).

(G) Two Mouth Creek from the confluence with Priest Lake upstream 15.7 km (9.8 mi) to its headwaters provides spawning and rearing habitat for the Two Mouth Creek local population (PBTTAT 1998b; USFWS 2002).

(H) Granite Creek from the confluence with Priest Lake upstream 17.8 km (11.1 mi) to its forks, South Fork Granite Creek from the confluence with Granite

Creek upstream 22.6 km (14.0 mi) to its headwaters, and North Fork Granite Creek from the confluence with Granite Creek upstream 18.9 km (11.8 mi) to its headwaters provide spawning and rearing habitat for the Granite Creek local population of bull trout (PBTTAT 1998b; USFWS 2002).

(I) Indian Creek from the confluence with Priest Lake upstream 5.2 km (3.2 mi) to its forks, South Fork Indian Creek from its mouth upstream 5.8 km (3.6 mi) to its headwaters, and North Fork Indian Creek from its mouth upstream 11.7 km (7.3 mi) to its headwaters provide spawning and rearing habitat for the Indian Creek local population of bull trout (PBTTAT 1998b; USFWS 2002).

(J) Kalispell Creek from the confluence with Priest Lake upstream 23.3 km (14.5 mi) to its headwaters provides spawning and rearing habitat for the Kalispell Creek local population of bull trout (PBTTAT 1998b; USFWS 2002).

(K) Soldier Creek from the confluence with Priest Lake upstream 23.3 km (14.5 mi) to its headwaters provides spawning and rearing habitat for the Soldier Creek local population of bull trout (PBTTAT 1998b; USFWS 2002).

(vi) Flathead Lake, Flathead River, and 20 Headwater Lakes CHSU

The Flathead Lake CHSU includes the entire Flathead River basin upstream from Kerr Dam (outlet of Flathead Lake), with the exception of the Swan River drainage upstream from Bigfork Dam, and the South Fork Flathead River drainage upstream from Hungry Horse Dam in Flathead and Lake counties, Montana. Flathead Lake is the largest natural freshwater lake west of the Mississippi River in the United States. Twenty other natural glaciated lakes up to 2,800 ha (6,919 ac) in size are occupied by bull trout in this CHSU. The entire south half of Flathead Lake is inside the boundaries of the Flathead Indian Reservation, and falls under the jurisdiction of the Confederated Salish and Kootenai Tribes. A total of 837 km (520 mi) of 57 streams and 56,838 ha (140,449 ac) of lake surface area in 21 lakes is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 68 percent Federal, 10 percent State, and 22 percent private. Substantial portions of the Federal lands are in Glacier National Park or Congressionally designated wilderness. Lakeshore ownership is mixed: Flathead Lake (49,575 ha (20,062 ac)) makes up about 87 percent of the lake surface area. The south half of Flathead Lake lies on the Flathead Indian Reservation, though most of the lakeshore is privately owned and developed. The north half of Flathead Lake is also almost entirely private and developed into homes and resorts. Fifteen of the other lakes (5,556 ha (13,729 ac) are in Glacier National Park, though road and campground development exists on most of the larger lakes, and commercial development and some private land occurs along Lake McDonald. The shoreline of 1,356 ha (3,350 ac) Whitefish Lake is almost entirely private and developed. Of the remaining four lakes, three (Upper Whitefish, Upper Stillwater, and Cyclone) are primarily surrounded by State lands that have been logged, but not developed. Only one very small lake, Frozen Lake (12 ha (30 ac)) which spans the International Border with Canada, is located on National Forest land.

(A) The entire basin of Flathead Lake, to the high water mark (49,574 ha (122,500 ac)) provides FMO habitat for tributary populations of bull trout (Fraley and Shepard 1989).

(B) The Flathead River from its confluence with Flathead Lake upstream 85.4 km (53.1 mi) to its forks; the Middle Fork Flathead River from its mouth upstream 140.3 km (87.2 mi) to its headwaters; and the North Fork Flathead River from its mouth upstream 92.9 km (57.7 mi) to the Canadian border provide FMO habitat for multiple local populations of bull trout (MBTSG 1995c; USFWS 2002).

(C) Nyack Creek from its confluence with the Middle Fork Flathead River upstream 11.4 km (7.1 mi) to a naturally de-watered reach provides spawning and rearing habitat for the Nyack Creek local population (MBTSG 1995c; USFWS 2002).

(D) Park Creek from its confluence with the Middle Fork Flathead River upstream 13.7 km (8.5 mi) to the confluence with its' tributary Elk Creek provides spawning and rearing habitat for the Park Creek local population (MBTSG 1995c; USFWS 2002).

(E) Ole Creek from its confluence with the Middle Fork Flathead River upstream 12.6 km (7.9 mi) to a naturally de-watered reach near the trail junction, just upstream of Debris Creek, provides spawning and rearing habitat for the Ole Creek local population (MBTSG 1995c; USFWS 2002).

(F) Bear Creek from its confluence with the Middle Fork Flathead River upstream 17.7 km (11.0 mi) to a barrier at the junction of Skyland Creek provides spawning and rearing habitat for the Bear Creek local population (MBTSG 1995c; USFWS 2002).

(G) Long Creek from its confluence with the Middle Fork Flathead River upstream approximately 8.0 km (5.0 mi) provides spawning and rearing habitat for the Long Creek local population (MBTSG 1995c; USFWS 2002).

(H) Granite Creek from its confluence with the Middle Fork Flathead River upstream 13.1 km (8.1 mi) to its headwaters provides spawning and rearing habitat for the Granite Creek local population (MBTSG 1995c; USFWS 2002).

(I) Morrison Creek from its confluence with the Middle Fork Flathead River upstream 19.8 km (12.3 mi) to the junction with Puzzle Creek; Puzzle Creek from its mouth upstream 4.4 km (2.7 mi) to its headwaters, Lodgepole Creek from its confluence with Morrison Creek upstream 3.1 km (1.9 mi) to its junction with Whistler Creek; and Whistler Creek from its mouth upstream 5.9 km (3.7 mi) to its headwaters provide spawning and rearing habitat for the Morrison Creek local population (MBTSG 1995c; USFWS 2002).

(J) Schafer Creek from its confluence with the Middle Fork Flathead River upstream 5.9 km (3.7 mi) to a natural barrier near the confluence of Rouge Creek, and Dolly Varden Creek from its junction with Schafer Creek upstream 12.1 km (7.5 mi) to Dolly Varden Falls near the confluence of Argosy Creek provide spawning and rearing habitat for the Schafer Creek local population (MBTSG 1995c; USFWS 2002).

(K) Clack Creek from its confluence with the Middle Fork Flathead River upstream 3.9 km (2.4 mi) to a natural barrier approximately one-third the distance up its watershed near the trail junction to Trilobite Lakes provides spawning and rearing habitat for the Clack Creek local population (MBTSG 1995c; USFWS 2002).

(L) Bowl Creek from its confluence with the Middle Fork Flathead River upstream 7.9 km (4.9 mi) to the junction with Basin Creek; Basin Creek from its mouth upstream 10.0 km (6.2 mi) to a natural barrier in its upper reaches; and Scalp Creek from its confluence with Bowl Creek upstream 4.6 km (2.8 mi) to its headwaters provide spawning and rearing habitat for the Bowl Creek local population (MBTSG 1995c; USFWS 2002).

(M) Strawberry Creek from its confluence with the Middle Fork Flathead River upstream 21.2 km (13.2 mi) to its headwaters; Trail Creek from its junction with Strawberry Creek upstream 7.3 km (4.6 mi) to the junction with Jeff Creek; Gateway Creek from its confluence Strawberry Creek upstream 9.3 km (5.8 mi) to its headwaters; and East Fork Strawberry Creek from its confluence Strawberry Creek upstream 5.7 km (3.5 mi) to its headwaters

provide spawning and rearing habitat for the Strawberry Creek local population (MBTSG 1995c; USFWS 2002).

(N) Big Creek from its confluence with the North Fork Flathead River upstream 18.4 km (11.4 mi) to a natural barrier in the headwaters upstream from Nicola Creek; Skookoleel Creek from its confluence with Big Creek upstream 8.2 km (5.1 mi) to its headwaters; Hallowat Creek from its mouth at Big Creek upstream 14,8 km (9.2 mi) to its headwaters; Werner Creek from its mouth at Hallowat Creek upstream 4.0 km (2.5 mi) to its headwaters; and Kletomus Creek from its mouth at Hallowat Creek upstream 8.2 km (5.1 mi) to its headwaters provide spawning and rearing habitat for the Big Creek local population (MBTSG 1995c; USFWS 2002).

(O) Coal Creek from its confluence with the North Fork Flathead River upstream 28.5 km (17.7 mi) to its headwaters; Cyclone Creek from its confluence with Coal Creek upstream 5.0 km (3.1 mi) to Cyclone Lake; South Fork Coal Creek from its mouth upstream10.2 km (6.4 mi) to a natural barrier; and Mathias Creek from its mouth at South Fork Coal Creek upstream 4.6 km (2.9 mi) to a natural barrier provide spawning and rearing habitat for the Coal Creek local population (MBTSG 1995c; USFWS 2002). Approximately 1.0 km (0.6 mi) of Cyclone Creek downstream from Cyclone Lake may also provide spawning and rearing habitat for the Cyclone Lake local population (MBTSG 1995c).

(P) Cyclone Lake (49 ha (121 ac)) provides FMO habitat, and Cyclone Creek from its confluence with Cyclone Lake upstream 8.6 km (5.4 mi) to its headwaters provides spawning and rearing habitat for the Cyclone Creek local population (USFWS 2002).

(Q) Red Meadow Creek from its confluence with the North Fork Flathead River upstream 22.3 km (13.9 mi) to its source at Red Meadow Lake provides spawning and rearing habitat for the Red Meadow Creek local population (MBTSG 1995c; USFWS 2002).

(R) Whale Creek from its confluence with the North Fork Flathead River upstream 23.0 km (14.3 mi) to Whale Creek Falls upstream from Shorty Creek; Shorty Creek from its confluence with Whale Creek upstream 4.4 km (2.7 mi) to the junction of South Fork Shorty Creek; and South Fork Shorty Creek upstream 1.6 km (1.0 mi) to a natural barrier near an unnamed tributary originating in Stoney Basin Lake provide spawning and rearing habitat for the Whale Creek local population (MBTSG 1995c; USFWS 2002).

(S) Trail Creek from its confluence with the North Fork Flathead River upstream 13.3 km (8.3 mi) to a natural barrier near the junction of Thoma Creek provides spawning and rearing habitat for the Trail Creek local population (MBTSG 1995c; USFWS 2002).

(T) Whitefish Lake (1,356 ha (3,351 ac)) provides FMO habitat for the depressed Whitefish Lake local population. Swift Creek from Whitefish Lake upstream 26.5 km (16.5 mi) to the junction of its East and West Forks provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. West Fork Swift Creek from its mouth upstream 13.7 km (8.5 mi) to its headwaters provides spawning and rearing habitat for this local population (MBTSG 1995c; USFWS 2002).

(U) Upper Whitefish Lake (36 ha (89 ac)) provides FMO habitat for the Upper Whitefish Lake local population. East Fork Swift Creek from its confluence with Upper Whitefish Lake upstream 9.5 km (5.9 mi) to its headwaters provides spawning and rearing habitat.

(V) Upper Stillwater Lake (225 ha (556 ac)) provides FMO habitat for the Stillwater Lake local population. The Stillwater River from its mouth at the lake upstream 35.3 km (21.9 mi) to its' headwaters provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. Fitzsimmons Creek from its junction with the Stillwater River upstream 9.4 km (5.9 mi) to its headwaters provides spawning and rearing habitat (MBTSG 1995c; USFWS 2002).

(W) Lake McDonald (2,761 ha (6,823 ac)) provides FMO habitat, and its tributary McDonald Creek upstream 2.6 km (1.6 mi) from the mouth to McDonald Falls provides spawning and rearing habitat for the depressed McDonald Creek local population of bull trout (MBTSG 1995c; USFWS 2002).

(X) Lincoln Lake (16 ha (40 ac)) provides FMO habitat, and Lincoln Creek from its mouth upstream 0.8 km (0.5 mi) to Beaver Chief Falls provides spawning and rearing habitat for the Lincoln Creek local population (MBTSG 1995c; USFWS 2002).

(Y) Harrison Lake (166 ha (410 ac)) provides FMO habitat, and its tributary Harrison Creek from the mouth upstream 6.9 km (4.3 mi) to its headwaters provides spawning and rearing habitat for the Harrison Creek local population (MBTSG 1995c; USFWS 2002).

(Z) Lake Isabel (17 ha (42 ac)) provides FMO habitat and its tributary Park Creek from the mouth upstream 1.4 km (0.9 mi) to its headwaters provides spawning and rearing habitat for the Park Creek local population (MBTSG 1995c; USFWS 2002).

(AA) Trout Lake (86 ha (213 ac)) and Arrow Lake (23 ha (57 ac)) provide FMO habitat, and Camas Creek between Trout and Arrow lakes (approximately 2.1 km (1.3 mi)), as well as upstream of Arrow Lake 4.1 km (1.3 mi) to Camas Lake provide spawning and rearing habitat for the Camas Creek local population (MBTSG 1995c; USFWS 2002).

(BB) Logging Lake (444 ha (1,097 ac)) provides FMO habitat, and its tributary Logging Creek from its junction with the upstream (east) end of the lake upstream 1.8 km (1.1 mi) to the outlet of Grace Lake provides spawning and rearing habitat for the Logging Creek local population (MBTSG 1995c; USFWS 2002).

(CC) Lower Quartz (67 ha (166 ac)) and the Upper Quartz Lakes Complex (Middle Quartz Lake, Quartz Lake, and Cerulean Lake; 399 ha (986 ac) combined) provide FMO habitat. Quartz Creek from the inlet of Lower Quartz Lake upstream 1.5 km (0.9 mi) to Middle Quartz Lake; Quartz Creek from the inlet of Middle Quartz Lake upstream 7.9 km (4.9 mi) to Quartz Lake; and Rainbow Creek from its confluence with Quartz Creek upstream 1.7 km (1.1 mi) to Cerulean Lake provide spawning and rearing habitat for the Quartz Creek local population (MBTSG 1995c; USFWS 2002).

(DD) Bowman Lake (690 ha (1,705 ac)) provides FMO habitat, and its tributary Bowman Creek from the inlet to Bowman Lake upstream 10.6 km (6.6 mi) to its headwaters provides spawning and rearing habitat for the Bowman Creek local population (MBTSG 1995c; USFWS 2002).

(EE) Akokala Lake (9 ha (23 ac)) provides FMO habitat, and its tributary Akokala Creek upstream 1.4 km (0.9 mi) from the lake inlet to its headwaters provides spawning and rearing habitat for the Akokala Creek local population (MBTSG 1995c; USFWS 2002).

(FF) Kintla Lake (687 ha (1,698 ac)) provides FMO habitat and Kintla Creek from its inlet to Kintla Lake upstream 2.6 km (1.6 mi) to a natural barrier provides spawning and rearing habitat for the Kintla Creek local population (MBTSG 1995c; USFWS 2002).

(GG) Upper Kintla Lake (191 ha (472 ac)) provides FMO habitat and Kintla Creek from the inlet to Upper Kintla Lake upstream 9.4 km (5.9 mi) to its headwaters provides spawning and rearing habitat for the Upper Kintla

Creek local population (MBTSG 1995c; USFWS 2002).

(HH) Frozen Lake (12 ha (30 ac)) provides FMO habitat, and Frozen Creek from the lake inlet upstream 4.2 km (2.6 mi) to its headwaters provides spawning and rearing habitat for the Frozen Creek local population (MBTSG 1995c; USFWS 2002).

(vii) Swan CHSU

The Swan CHSU includes the entire Swan River drainage upstream from Bigfork Dam (near the Swan River's confluence with Flathead Lake) in Lake and Missoula counties, Montana. The Swan CHSU is a linear valley bounded by the Swan Range to the west and the Mission Mountains to the east. A total of 212 km (132 mi) of 17 streams and 1,543 ha (3,813 ac) of lake surface area in three lakes is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 36 percent Federal, 17 percent State, and 47 percent private. The Swan Lake shoreline is about half private, with extensive home and resort developments, and half surrounded by either National Forest or National Wildlife Refuge lands. Holland Lake is on National Forest land, some of which is leased and developed. Lindbergh Lake is mostly surrounded by National Forest, but a portion of the lakeshore is developed with home sites.

(A) Swan Lake (1,085 ha (2,680 ac)) provides FMO habitat for upstream tributary populations of bull trout (MBTSG 1996b). The Swan River from its upstream inlet to Swan Lake upstream approximately 87.4 km (54.3 mi) provides FMO habitat for tributary populations of bull trout to the confluence with Lindbergh Lake, and provides spawning and rearing habitat above Lindbergh Lake.

(B) Lost Creek from the confluence with the Swan River upstream 2.8 km (1.7 mi) to the junction of the North and South Forks; North Fork Lost Creek from its mouth upstream 7.6 km (4.7 mi) to a barrier falls; and South Fork Lost Creek from its mouth upstream 7.3 km (4.6 mi) to a barrier falls provide spawning and rearing habitat for the Lost Creek local population of bull trout (MBTSG 1996b; USFWS 2002).

(C) Soup Creek from the confluence with the Swan River upstream 11.1 km (6.9 mi) to a natural barrier falls provides spawning and rearing habitat for the Soup Creek local population (MBTSG 1996b; USFWS 2002).

(D) Woodward Creek from the confluence with the Swan River upstream 6.0 km (3.7 mi) to a barrier falls on the northernmost fork, and South Fork Woodward Creek from its junction with Woodward Creek upstream 4.7 km (2.9 mi) to a point where the stream makes a hard turn from its southerly direction to a westerly direction provide spawning and rearing habitat for the Woodward Creek local population (MBTSG 1996b; USFWS 2002).

(E) Goat Creek from the confluence with the Swan River upstream 11.5 km (7.2 mi) to the confluence with Bethal Creek and Squeezer Creek from its junction with Goat Creek upstream 8.6 km (5.3 mi) to a barrier falls provide spawning and rearing habitat for the Goat Creek local population (MBTSG 1996b; USFWS 2002).

(F) Lion Creek from its confluence with the Swan River upstream 11.4 km (7.1 mi) to a natural barrier falls approximately half way up the drainage provides spawning and rearing habitat for the Lion Creek local population (MBTSG 1996b; USFWS 2002).

(G) Piper Creek from its confluence with the Swan River upstream 5.9 km (3.7 mi) to the junction with Moore Creek provides spawning and rearing habitat for the Piper Creek local population (MBTSG 1996b; USFWS 2002).

(H) Jim Creek from its confluence with the Swan River upstream 11.9 km (7.4 mi) to the lowermost Jim Lake provides spawning and rearing habitat for the Jim Creek local population.

(I) Cold Creek from its confluence with the Swan River upstream 10.0 km (6.2 mi) to the junction with North Fork Cold Creek provides spawning and rearing habitat for the Cold Creek local population (MBTSG 1996b; USFWS 2002).

(J) Elk Creek from its confluence with the Swan River upstream 16.9 km (10.5 mi) to the confluence of the North and South Fork Elk Creek provides spawning and rearing habitat for the Elk Creek local population (MBTSG 1996b; USFWS 2002).

(K) Lindbergh Lake (293 ha (725 ac)) provides FMO habitat; approximately 6 km (3.8 mi) of the upper Swan River (previously described in (a), above), and Crystal Creek from its confluence with the upper Swan River upstream approximately 1 km (0.6 mi) to a natural barrier downstream from the outlet of Crystal Lake provide spawning and rearing habitat for the Upper Swan River local population (MBTSG 1996b; USFWS 2002).

(L) Holland Lake provides FMO habitat, and Holland Creek upstream 0.6 km (0.4 mi) from Holland Lake to a natural barrier falls provides spawning and rearing habitat for the Holland Creek local population (MBTSG 1996b; USFWS 2002).

(viii) Hungry Horse Reservoir CHSU

The Hungry Horse Reservoir CHSU includes the entire South Fork Flathead River drainage upstream from Hungry Horse Dam (9.0 km (5.6 mi) upstream from the South Fork's confluence with the mainstem Flathead River) in Flathead, Missoula, Powell, and Lewis and Clark counties, Montana. A total of 336 km (209 mi) of 16 streams; 9,632 ha (23,800 ac) Hungry Horse Reservoir; and two lakes (Big Salmon Lake, 324 ha (800 ac)); Doctor Lake, 32 ha (79 ac) are proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams and lake shores is entirely Federal (100 percent), lying in either National Forest or Congressionally designated wilderness.

(A) Hungry Horse Reservoir (9,632 ha (23,800 ac)) and the South Fork Flathead River upstream 93.6 km (58.2 mi) from the full pool level of Hungry Horse Reservoir to its source at the confluence of Youngs and Danaher creeks provide critical FMO habitat for tributary spawning populations of bull trout (MBTSG 1995d).

(B) Wounded Buck Creek from its mouth at Hungry Horse Reservoir upstream 6.0 km (3.7 mi) to a natural barrier falls in the upper reaches of the drainage provides spawning and rearing habitat for the Wounded Buck Creek local population of bull trout (MBTSG 1995d; USFWS 2002).

(C) Wheeler Creek from its mouth at Hungry Horse Reservoir upstream 5.9 km (3.6 mi) to a natural barrier falls just upstream of the junction of Trapper Creek provides spawning and rearing habitat for the Wheeler Creek local population of bull trout (MBTSG 1995d; USFWS 2002).

(D) Sullivan Creek from its mouth at Hungry Horse Reservoir upstream 24.0 km (14.9 mi) to its headwaters and its tributary Quintonkon Creek from its mouth upstream 5.2 km (3.3 mi) to a natural barrier falls approximately half way up the drainage provide spawning and rearing habitat for the Sullivan Creek local population of bull trout (MBTSG 1995d; USFWS 2002).

(E) The Spotted Bear River from its confluence with the South Fork Flathead River upstream 32.8 km (20.4 mi) to Dean Falls, just upstream from the confluence of Slim Creek, provides spawning and rearing habitat for the Spotted Bear River local population (MBTSG 1995d; USFWS 2002).

(F) Bunker Creek from its confluence with the South Fork Flathead River upstream 17.9 km (11.1 mi) to a barrier

falls just upstream of the junction with String Creek provides spawning and rearing habitat for the Bunker Creek local population (MBTSG 1995d; USFWS 2002).

(G) Little Salmon Creek from its confluence with the South Fork Flathead River upstream 28.7 km (17.8 mi) to its source provides spawning and rearing habitat for the Little Salmon Creek local population (MBTSG 1995d; USFWS 2002).

(H) Big Salmon Lake (324 ha (800 ac)) provides FMO habitat, and Big Salmon Creek upstream 7.4 km (4.6 mi) from Big Salmon Lake to a barrier falls just upstream from the junction of Spud Creek provides spawning and rearing habitat for the Big Salmon Creek local population (MBTSG 1995d; USFWS 2002).

(I) The White River from its confluence with the South Fork Flathead River upstream 13.1 km (8.1 mi) to Needle Falls (approximately 3 km (1.9 mi) upstream from the junction of the South Fork White River) provides spawning and rearing habitat for the White River local population (MBTSG 1995d; USFWS 2002).

(J) Gordon Creek from its confluence with the South Fork Flathead River upstream 23.4 km (14.5 mi) to a barrier falls near the confluence with George Creek provides spawning and rearing habitat for the Gordon Creek local population (MBTSG 1995d; USFWS 2002).

(K) Doctor Lake 32 ha (79 ac) provides FMO habitat, and the entire length (5.2 km (3.3 mi)) of Doctor Creek occurring both upstream and downstream of Doctor Lake provides spawning and rearing habitat for the Doctor Creek local population (MBTSG 1995d; USFWS 2002).

(L) Youngs Creek from its confluence with the headwaters of the South Fork Flathead River upstream 28.7 km (17.8 mi) to the junction of Ross Creek near its headwaters, and Babcock Creek (a tributary to Youngs Creek) from its mouth upstream 7.3 km (4.5 mi) to the confluence with Otis Creek provide spawning and rearing habitat for the Youngs Creek local population (MBTSG 1995d; USFWS 2002).

(M) Danaher Creek from its confluence with the headwaters of the South Fork Flathead River upstream 33.5 km (20.8 mi) to its source, and Rapid Creek (a tributary to Danaher Creek) from its mouth upstream2.9 km (1.8 mi) to the confluence of Fiction Creek provide spawning and rearing habitat for the Danaher Creek local population (MBTSG 1995d; USFWS 2002).

(ix) Bitterroot CHSU

The Bitterroot CHSU includes the entire Bitterroot River drainage on the western border of Montana, upstream from its' confluence with the Clark Fork River in Missoula and Ravalli counties, Montana. A total of 799 km (496 mi) of 43 streams and 265 ha (655 ac) of Painted Rocks Reservoir is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 64 percent Federal, 1 percent State, and 35 percent private. Painted Rocks Reservoir is mostly on National Forest with some private development. In this CHSU, nearly all headwaters are on National Forest lands, and the vast majority of the Bitterroot Valley, including lower ends of tributary drainages and the entire mainstem of the Bitterroot River are privately owned and extensively developed with ranches, home sites, and businesses.

(A) The Bitterroot River from its junction with the Clark Fork River upstream 135.8 km (84.3 mi) to the confluence of its East and West Forks provides FMO habitat for tributary populations of bull trout (MBTSG 1995a; USFWS 2002).

(B) Burnt Fork Creek from its confluence with the Bitterroot River upstream 41.2 km (25.6 mi) to its headwaters; Gold Creek from its mouth at Burnt Fork Creek upstream 10.8 km (6.7 mi) to its headwaters; and Little Burnt Fork Creek from its mouth upstream 5.5 km (3.4 mi) to its source provide spawning and rearing habitat for the Burnt Fork Creek local population (MBTSG 1995a; USFWS 2002).

(C) Fred Burr Creek from its confluence with the Bitterroot River upstream 14.3 km (8.9 mi) to Fred Burr Reservoir provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. Its tributary Mill Creek, from its mouth upstream 19.5 km (12.1 mi) to a natural barrier just upstream of the Wilderness Boundary, provides spawning and rearing habitat supporting the Fred Burr Creek local population (MBTSG 1995a; USFWS 2002).

(D) Blodgett Creek from its confluence with the Bitterroot River upstream 30.7 km (19.0 mi) to its headwaters provides spawning and rearing habitat for the Blodgett Creek local population (MBTSG 1995a; USFWS 2002).

(E) Skalkaho Creek from its confluence with the Bitterroot River upstream 40.4 km (25.1 mi) to its headwaters; Daly Creek from its confluence with Skalkaho Creek upstream 12.2 km (7.6 mi) to Skalkaho Falls; Railroad Creek from its confluence with Skalkaho Creek upstream 8.4 km (5.2 mi); and Weasel Creek from its confluence with Skalkaho Creek upstream 5.3 km (3.3 mi) to its source provide spawning and rearing habitat for the Skalkaho Creek local population (MBTSG 1995a; USFWS 2002).

(F) Sleeping Child Creek from its confluence with the Bitterroot River upstream 38.5 km (23.9 mi) to its headwaters; Two Bear Creek from its confluence with Sleeping Child Creek upstream 10.7 km (6.6 mi) to its source; Divide Creek from its confluence with Sleeping Child Creek upstream 14.8 km (9.2 mi) to its source; and Switchback Creek from its confluence with Divide Creek upstream 1.0 km (0.6 mi) to a natural barrier provide spawning and rearing habitat for the Sleeping Child Creek local population (MBTSG 1995a; USFWS 2002).

(G) The West Fork of the Bitterroot River from its confluence with the Bitterroot River upstream 35.2 km (21.9 mi) to Painted Rocks Reservoir and Painted Rocks Reservoir (265 ha (655 ac)) provide FMO habitat for tributary populations of bull trout. The West Fork of the Bitterroot River from Painted Rocks Reservoir upstream 27.9 km (17.3 mi); Slate Creek from the confluence with Painted Rocks Reservoir upstream 17.3 km (10.8 mi) to its source; Blue Joint Creek from the confluence with Painted Rocks Reservoir upstream 28.0 km (17.4 mi) to a natural barrier; Overwhich Creek from its confluence with the West Fork Bitterroot River upstream 23.2 km (14.4 mi) to a natural barrier; Straight Creek from its confluence with Overwhich Creek upstream 5.4 km (3.3 mi) to its headwaters; Hughes Creek from its confluence with the West Fork Bitterroot River upstream 28.4 km (17.6 mi) to its source; Chicken Creek from its confluence with the West Fork Bitterroot River upstream 8.2 km (5.1 mi) to its forks; Deer Creek from its confluence with the West Fork Bitterroot River upstream 20.1 km (12.5 mi) to its headwaters; Woods Creek from its confluence with the West Fork Bitterroot River upstream 11.0 km (6.8 mi) to its headwaters; Johnson Creek from its confluence with the West Fork Bitterroot River upstream 7.4 km (4.6 mi) to its source; Beaver Creek from its confluence with the West Fork Bitterroot River upstream 7.4 km (4.6 mi) to its source; and Sheep Creek from its confluence with the West Fork Bitterroot River upstream 5.0 km (3.1 mi) to its headwaters provide spawning and rearing habitat for the West Fork Bitterroot River population complex of

bull trout (MBTSG 1995a; USFWS 2002).

(H) The East Fork Bitterroot River from its mouth upstream 59.4 km (36.9 mi) provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. Meadow Creek from its confluence with the East Fork Bitterroot River upstream 15.6 km (9.7 mi) to its headwaters; Swift Creek from its mouth on Meadow Creek upstream 3.2 km (2.0 mi) to a natural barrier falls; Bugle Creek from its confluence with Meadow Creek upstream 6.2 km (3.9 mi) to its source; Moose Creek from its confluence with the East Fork Bitterroot River upstream 10.6 km (6.6 mi) to a natural barrier; Martin Creek from its mouth on Moose Creek upstream 18.8 mi (11.7 mi) to its headwaters; Bush Creek from its confluence with Martin Creek upstream 6.5 km (4.0 mi) to its source; Lick Creek from its junction with Moose Creek upstream 5.9 km (3.6 mi) to its headwaters; Reynolds Creek from its junction with Moose Creek upstream 6.4 km (4.0 mi) to its source; Sign Creek from its junction with Moose Creek upstream 4.2 km (2.6 mi) to its source; and Buck Creek from its confluence with the East Fork Bitterroot River upstream 1.6 km (1.0 mi) to its headwaters provide spawning and rearing habitat for the East Fork Bitterroot River population complex of bull trout (MBTSG 1995a; USFWS 2002).

(I) Warm Springs Creek from its confluence with the East Fork Bitterroot River upstream 19.3 km (12.0 mi); Fire Creek from its confluence with Warm Springs Creek upstream 2.4 km (1.5 mi); Wiles Creek from its confluence with Warm Springs Creek upstream 8.8 km (5.5 mi) to its source; Fault Creek from its mouth at Wiles Creek upstream 5.3 km (3.3 mi) to its source; Porcupine Creek from its junction with Warm Springs Creek upstream 7.2 km (4.5 mi); and Prayer Creek from its junction with Warm Springs Creek upstream 4.4 km (2.7 mi) provide spawning and rearing habitat for the Warm Springs Creek local population of bull trout (MBTSG 1995a; USFWS 2002).

(x) Blackfoot River CHSU

The Blackfoot River CHSU includes the entire Blackfoot River drainage in western Montana in Missoula, Powell, and Lewis and Clark counties, with the exception of its' tributaries in the Clearwater River CHSU. A total of 436 km (270 mi) of 12 streams is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams proposed for designation as critical habitat is approximately 34 percent Federal, 8 percent State, and 58 percent private.

(A) The Blackfoot River from its confluence with the Clark Fork River at Milltown upstream 191.0 km (118.7 mi) to the confluence of Alice Creek provides FMO habitat for tributary populations of bull trout (MBTSG 1995b).

(B) Gold Creek from its junction with the Blackfoot River upstream 19.4 km (12.1 mi) to a barrier falls near the National Forest boundary; the West Fork of Gold Creek from its mouth upstream13.1 km (8.1 mi) to its headwaters; and Daisy Creek from its confluence with the West Fork of Gold Creek upstream 6.2 km (3.9 mi) to its source provide spawning and rearing habitat for the Gold Creek local population of bull trout (MBTSG 1995b; USFWS 2002).

(C) Belmont Creek from its junction with the Blackfoot River upstream 16.9 km (10.5 mi) to its source provides spawning and rearing habitat for the Belmont Creek local population of bull trout (MBTSG 1995b; USFWS 2002).

(D) Cottonwood Creek from its junction with the Blackfoot River upstream 23.8 km (14.8 mi) to its source at Cottonwood Lake provides spawning and rearing habitat for the Cottonwood Creek local population (MBTSG 1995b; USFWS 2002).

(E) Monture Creek from its junction with the Blackfoot River upstream 47.3 km (29.4 mi) to its headwaters; Dunham Creek from its confluence with Monture Creek upstream 23.3 km (14.4 mi) to its headwaters; and Lodgepole Creek from its junction with Dunham Creek upstream 11.7 km (7.2 mi) to its source provide spawning and rearing habitat for the Monture Creek local population (MBTSG 1995b; Pierce *et al.* 1997; USFWS 2002).

(F) The North Fork Blackfoot River from its confluence with the Blackfoot River upstream 41.0 km (25.5 mi) to a natural barrier at North Fork Falls provides spawning and rearing habitat for the North Fork Blackfoot River local population (MBTSG 1995b; Pierce *et al.* 1997; USFWS 2002).

(G) The Landers Fork from its confluence with the Blackfoot River upstream17.9 km (11.2 mi) to a barrier falls near the junction of Byrnes Creek (just downstream from the Scapegoat Wilderness), and Copper Creek from its junction with Landers Fork upstream 24.0 km (14.9 mi) to its headwaters provide spawning and rearing habitat for the Landers Fork local population (MBTSG 1995b; Pierce *et al.* 1997; USFWS 2002).

(xi) Clearwater River and Lake Chain CHSU

The Clearwater River and Lake Chain CHSU includes the Clearwater River, a tributary to the Blackfoot River, drainage in Missoula and Powell counties, Montana. A total of 157 km (97 mi) of 9 streams, and 1,460 ha (3,608 ac) of lake surface area in seven lakes is proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 51 percent Federal, 5 percent State, and 44 percent private.

(A) Salmon Lake (263 ha (650 ac)) provides FMO habitat for tributary populations of bull trout (MBTSG 1995b).

(B) The Clearwater River from its confluence with Salmon Lake upstream 39.1 km (24.3 mi) to its headwaters at Clearwater Lake provides habitat for bull trout. FMO habitat for tributary bull trout populations occurs below the confluence with the East Fork Clearwater River. Upstream from the junction with the East Fork Clearwater River spawning and rearing habitat for the Clearwater River local population complex of bull trout occurs (MBTSG 1995b; USFWS 2002).

(C) Owl Creek from its confluence with the Clearwater River upstream 6.6 km (4.1 mi) to its origin at Placid Lake, and Placid Lake (463 ha (187 ac)) provide FMO habitat for tributary populations. Placid Creek from its junction with Placid Lake upstream17.1 km (10.7 mi) to its headwaters, and its tributary Finley Creek from its mouth upstream 8.3 km (5.2 mi) to its source provide spawning and rearing habitat for the Placid Creek local population of bull trout (MBTSG 1995b; USFWS 2002).

(D) Morrell Creek from its confluence with the Clearwater River upstream 29.4 km (18.2 mi) provides spawning and rearing habitat for the Morrell Creek local population of bull trout (MBTSG 1995b; USFWS 2002).

(E) Seeley Lake (415 ha (1,025 ac)) provides FMO habitat, and Deer Creek from its junction with Seeley Lake upstream 16.5 km (10.2 mi) to its headwater provides spawning and rearing habitat for the Deer Creek local population of bull trout (MBTSG 1995b; USFWS 2002).

(F) The West Fork Clearwater River from its confluence with the Clearwater River upstream 23.1 km (14.3 mi) to its headwaters provides FMO habitat in the lower reaches, and spawning and rearing habitat for the West Fork Clearwater River local population in the upper reaches (MBTSG 1995b; USFWS 2002).

(G) Lake Inez (119 ha (294 ac)), Lake Alva (121 ha (299 ac)), Rainy Lake (28 ha (69 ac)), and Clearwater Lake (51 ha (126 ac)) provide FMO habitat for tributary populations of bull trout (MBTSG 1995b).

(H) Colt Creek from its confluence with the Clearwater River upstream 8.8 km (5.4 mi) to its headwaters, and the East Fork Clearwater River from its confluence with the Clearwater River upstream 7.9 km (4.9 mi) provide spawning and rearing habitat for the Clearwater River local population complex (MBTSG 1995b; USFWS 2002).

(xii) Rock Creek CHSU

The Rock Creek CHSU includes the entire watershed of Rock Creek in Missoula and Granite counties, Montana, from its junction with the Clark Fork River to its headwaters. A total of 487 km (302 mi) of 28 streams are proposed for designation as critical habitat for bull trout in this CHSU. Landownership along the streams is approximately 73 percent Federal, 1 percent State, and 26 percent private.

(A) Rock Creek from its confluence with the Clark Fork River near the town of Clinton upstream 83.3 km (51.7 mi) to its forks provides FMO habitat for tributary populations of bull trout (MBTSG 1995e).

(B) Gilbert Creek from its confluence with Rock Creek upstream 13.5 km (8.4 mi) to its headwaters provides spawning and rearing habitat for the Gilbert Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(C) Brewster Creek from its confluence with Rock Creek upstream 11.4 km (7.1 mi) to its source provides spawning and rearing habitat for the Brewster Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(D) Ranch Creek from its confluence with Rock Creek upstream 16.8 km (10.4 mi) to its headwaters provides spawning and rearing habitat for the Ranch Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(E) Welcome Creek from its confluence with Rock Creek upstream 11.9 km (7.4 mi) to its source provides spawning and rearing habitat for the Welcome Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(F) Butte Cabin Creek from its confluence with Rock Creek upstream 10.2 km (6.3 mi) to its headwaters provides spawning and rearing habitat for the Butte Cabin Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(G) Wahlquist Creek from its confluence with Rock Creek upstream 7.5 km (4.7 mi) to its headwaters provides spawning and rearing habitat for the Wahlquist Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(H) Cougar Creek from its confluence with Rock Creek upstream 7.7 km (4.8 mi) to its source provides spawning and rearing habitat for the Cougar Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(I) Hogback Creek from its confluence with Rock Creek upstream 7.3 km (4.5 mi) to its headwaters provides spawning and rearing habitat for the Hogback Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(J) Wyman Creek from its confluence with Rock Creek upstream 13.7 km (8.5 mi) to its headwaters provides spawning and rearing habitat for the Wyman Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(K) Stony Creek from its confluence with Rock Creek upstream 18.1 km (11.2 mi) to its source provides spawning and rearing habitat for the Stony Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(L) Upper Willow Creek from its confluence with Rock Creek upstream 31.2 km (19.4 mi) to its headwaters, and its tributary Beaver Creek from its mouth upstream 6.3 km (3.9 mi) to its source provide spawning and rearing habitat for the Upper Willow Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(M) West Fork Rock Creek from its confluence with Rock Creek upstream 38.4 km (23.9 mi) to its headwaters; North Fork Rock Creek from its confluence with West Fork Rock Creek upstream 7.8 km (4.8 mi) to its headwaters; Sand Basin Creek from its confluence with West Fork Rock Creek upstream 10.7 km (6.7 mi) to its source; and Bowles Creek from its confluence with West Fork Rock Creek upstream 6.8 km (4.2 mi) to its headwaters provide spawning and rearing habitat for the West Fork Rock Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(N) Ross Fork Rock Creek from its confluence with West Fork Rock Creek upstream 36.7 km (22.8 mi) to its headwaters; Moose Meadow Creek from its confluence with Ross Fork Rock Creek upstream 9.4 km (5.8 mi) to its source; and South Fork Ross Fork Rock Creek from its confluence with Ross Fork Rock Creek upstream 10.0 km (6.2 mi) to its headwaters provide spawning and rearing habitat for the Ross Fork Rock Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(O) East Fork Rock Creek from its confluence with Rock Creek upstream 25.8 km (16.0 mi) to its headwaters and Meadow Creek from its confluence with East Fork Rock Creek upstream 7.9 km (4.9 mi) to a barrier cascade at the confluence of Dexter Creek provide spawning and rearing habitat for the East Fork Rock Creek local population of bull trout. East Fork Reservoir (170 ha (420 ac) at full pool) provides FMO habitat for this local population (MBTSG 1995e; USFWS 2002).

(P) Middle Fork Rock Creek from its confluence with East Fork Rock Creek upstream 38.3 km (23.8 mi) to its source; Copper Creek from its confluence with Middle Fork Rock Creek upstream 19.2 km (11.9 mi) to its headwaters; Green Canyon Creek from its confluence with Copper Creek upstream 6.1 km (3.8 mi) to its headwaters; Lutz Creek from its confluence with Copper Creek upstream 8.3 km (5.1 mi) to its headwaters; Meyers Creek from its confluence with Middle Fork Rock Creek upstream 8.2 km (5.1 mi); and Carpp Creek from its confluence with Middle Fork Rock Creek upstream 14.3 km (8.9 mi) provide spawning and rearing habitat for the Middle Fork Rock Creek local population of bull trout (MBTSG 1995e; USFWS 2002).

(7) Unit 3: Kootenai River Basin

The Kootenai unit is located upstream and downstream from Libby Dam, in Montana, on the Kootenai River. It includes the northwestern corner of Montana and the northeastern tip of the panhandle of Idaho. The Kootenai River has a unique configuration, entering the U.S. from British Columbia, Canada and then returning to British Columbia where it joins the upper Columbia River drainage. This unit includes two CHSUs: the Kootenai River and Bull Lake CHSU lies in Boundary County, Idaho and Lincoln County, Montana. The Lake Koocanusa and Sophie Lake CHSU lies in Lincoln County, Montana.

We are proposing to designate critical habitat for bull trout in portions of 27 streams, 2 lakes, and 1 reservoir in this unit. The total stream distance is about 528 km (328 mi) in Montana, and 95 km (59 mi) in Idaho, for a total of 623 km (387 mi). The lakes and reservoir have a surface coverage of about 19,418 ha (47,982 ac), about 97 percent of which is the Lake Koocanusa reservoir. Landownership associated with the proposed critical habitat designations in waterways includes approximately 53 percent Federal land, 44 percent private lands, and 3 percent State land. The Draft Recovery Plan (USFWS 2002) identified 10 local populations of bull trout in this unit as essential to recovery.

(i) Kootenai River and Bull Lake CHSU

The Kootenai River and Bull Lake CHSU includes the entire Kootenai River drainage downstream from Libby Dam, and the Callahan Creek, O'Brien Creek, Quartz Creek, Pipe Creek, Libby Creek, Fisher River, and Keeler Creek local populations. The following stream segments are included in this CHSU.

(A) The Kootenai River from the Canadian border with Idaho upstream 184.2 km (114.4 mi) to Libby Dam provides FMO habitat.

(B) Callahan Creek from its confluence with the Kootenai River upstream 12.3 km (7.7 mi) to its headwaters provides spawning and rearing habitat. July Creek from its confluence with Callahan Creek upstream 1.6 km (1.0 mi) to its headwaters, Goat Creek from its confluence with Callahan Creek upstream 7.4 km (4.6 mi) to its headwaters, North Fork Callahan Creek from its confluence with Callahan Creek upstream 20.4 km (12.7 mi) to its headwaters, and South Fork Callahan Creek from its confluence with Callahan Creek upstream 19.6 km (12.2 mi) to its headwaters also provides spawning and rearing habitat for the Callahan Creek local population.

(C) O'Brien Creek from its confluence with the Kootenai River upstream 17.7 km (11.0 mi) to its headwaters provides spawning and rearing habitat for the O'Brien Creek local population.

(D) Quartz Creek from its confluence with the Kootenai River upstream 17.7 km (11.0 mi) to its headwaters, and West Fork Quartz Creek from its confluence with Quartz Creek upstream 10.0 km (6.2 mi) to its headwaters provide spawning and rearing habitat for the Quartz Creek local population.

(E) Pipe Creek from its confluence with the Kootenai River upstream 39.6 km (24.6 mi) to its headwaters, and East Fork Pipe Creek from its confluence with Pipe Creek upstream 13.5 km (8.4 mi) to its headwaters provide spawning and rearing habitat for the Pipe Creek local population.

(F) Libby Creek from its confluence with the Kootenai River upstream 48.1 km (29.9 mi) to its headwaters provides spawning and rearing habitat. Bear Creek from its confluence with Libby Creek upstream 13.2 km (8.2 mi) to its headwaters, Poorman Creek from its confluence with Libby Creek upstream 8.8 km (5.5 mi) to its headwaters, and Ramsey Creek from its confluence with Libby Creek upstream 9.7 km (6.0 mi) to its headwaters also provide spawning and rearing habitat for the Libby Creek local population.

(G) The Fisher River from its confluence with the Kootenai River upstream 47.3 km (29.4 mi) provides FMO habitat. West Fisher Creek from its confluence with the Fisher River upstream 21.4 km (13.3 mi) provides spawning and rearing habitat for the Fisher River local population.

(H) Bull Lake and associated tributaries contain a bull trout population that is isolated from the Kootenai River by Troy Dam, built in 1917. This population is unusual in that the adult spawners run downstream from Bull Lake, using Lake Creek as a corridor to access spawning areas in Keeler Creek. Downstream spawning migration is uncommon amongst bull trout populations. Bull Lake 506 ha (1,250 ac) and Lake Creek, a tributary to Bull Lake upstream from the confluence 13.0 km (8.1 mi), provide FMO habitat. Keeler Creek from the confluence with Lake Creek upstream 13.4 km (8.3 mi), and North Fork Keeler Creek from the confluence with Keeler Creek upstream 10.6 km (6.6 mi) provide spawning and rearing habitat for the Bull Lake local population.

(ii) Lake Koocanusa and Sophie Lake CHSU

This CHSU includes the entire Kootenai River drainage in Montana upstream from Libby Dam and includes the Grave Creek, Wigwam River, and Phillips Creek local populations. Fluvial populations of bull trout in the upper Kootenai watershed were converted to an adfluvial life history pattern by the addition of the large reservoir (Lake Koocanusa) behind Libby Dam, which backs up water some 69 km (43 mi) and into Canada.

(A) Lake Koocanusa, 18,818 ha (46,499 ac) in size of which most occurs within the United States, provides FMO habitat for the Grave Creek and Wigwam River local populations. The entire U.S. portion of the reservoir is proposed for designation as critical habitat for bull trout.

(B) The Tobacco River from its confluence with Lake Koocanusa upstream 21.7 km (13.5 mi) provides FMO habitat. Grave Creek from its confluence with the Tobacco River upstream 25.4 km (15.8 mi), Clarence Creek from its confluence with Grave Creek upstream 8.5 km (5.3 mi), and Blue Sky Creek from its confluence with Grave Creek upstream 2.1 km (1.3 mi) provide spawning and rearing habitat for the Grave Creek local population.

(C) The upper 7.1 km (4.4 mi) of the Wigwam River, which lies within the United States, provides spawning and rearing habitat for the Wigwam River local population.

(D) Sophie Lake, 94 ha (232 ac) in size, provides FMO habitat and Phillips Creek, from the confluence with Sophie Lake upstream 5.5 km (3.4 mi), provides spawning and rearing habitat for the Phillips Creek local population. This population of migratory (adfluvial) bull trout are isolated in a closed basin, with no active outlet stream (MBTSG 1996e).

(8) Unit 4: Willamette River Basin

The Willamette River Basin Unit includes 337 km (209 mi) of stream and 1,600 ha (3,954 ac) of lake habitat in the McKenzie River and Middle Fork Willamette River subbasins of western Oregon. The unit is located primarily within Lane County, but also extends into Linn County. Landownership within the CHSU is 46 percent Federal and 54 percent private. Currently, there are three known bull trout local populations in the McKenzie River subbasin, and one potential bull trout local population in the Middle Fork Willamette River subbasin. All four of these populations are identified as essential for bull trout recovery in the Draft Recovery Plan (USFWS 2002). The stream segments that make up the Willamette River Unit are described below. With the exception of the mainstem Willamette River, the lower Middle Fork Willamette River, and Lost Creek, all segments proposed as critical habitat are currently occupied by bull trout, and all segments are essential to the conservation of the species, as they are essential to supporting populations that meet recovery criteria in the Draft Recovery Plan (USFWS 2002).

(i) The Willamette River from its confluence with the McKenzie River at rkm 282.0 (rmi 175.1) upstream 19 km (11.8 mi) to its confluence with the Middle Fork Willamette River at rkm 301.0 (187.0). This segment provides for the maintenance of the migratory life history form of bull trout that is essential to the long-term conservation of the species, and is essential for providing connectivity between the McKenzie River and Middle Fork Willamette River local populations.

(ii) The McKenzie River and side channels from its confluence with the Willamette River upstream 136 km (84.5 mi) to Trail Bridge Dam, including Trail Bridge Reservoir (23 ha (57 ac) at full pool), and continuing upstream beyond the reservoir for 3.2 km (2 mi) to Tamolitch Falls. Three bull trout local populations have been identified on the McKenzie River: (1) the Trail Bridge population includes the McKenzie River and tributaries above Trail Bridge Dam; (2) the McKenzie River population includes the McKenzie River and tributaries downstream of Trail Bridge Dam; and, (3) the South Fork McKenzie River population includes the South

Fork McKenzie River and tributaries above Cougar Dam. The following McKenzie River tributaries (and associated reservoirs) are included: the Blue River from its confluence with the McKenzie River upstream 2.8 km (1.7 mi) to Blue River Lake Dam; the South Fork McKenzie River from its confluence with the McKenzie River upstream 7.2 km (4.5 mi) to Cougar Reservoir, including Cougar Reservoir (560 ha (1,384 ac) at full pool), and continuing upstream beyond the reservoir for 25.6 km (15.9 mi) to the Three Sisters Wilderness Area boundary, and also extending 5 km (3.1 mi) up Roaring River; Horse Creek and West Fork Horse Creek for a total of 18.5 km (11.5 mi) from the confluence with the McKenzie River upstream to Separation Creek, including side channels, and extending 3.1 km (2 mi) up Separation Creek; Lost Creek from its confluence with the McKenzie River upstream 5.8 km (3.6 mi) to a headwater spring; Deer Creek from its confluence with the McKenzie River upstream for a distance of 4.6 km (2.9 mi); Olallie Creek from its confluence with the McKenzie River upstream 3.2 km (2 mi) to a natural barrier; Anderson Creek from its confluence with the McKenzie River upstream 2.6 km (1.6 mi) to a natural barrier; and Sweetwater Creek from its inlet to Trail Bridge Reservoir upstream 1.9 km (1.2 mi) to a natural barrier.

(iii) The Middle Fork Willamette River from its confluence with the Willamette River upstream 48 km (29.9 mi) to Hills Creek Reservoir and including Dexter Reservoir (343 ha (848 ac)), Lookout Point Reservoir (1,617 ha (3,996 ac)), and Hills Creek Reservoir (1,060 ha (2,619 ac) at full pool), and continuing upstream from Hills Creek Reservoir for 32.2 km (20 mi) to the Paddy's Valley/Chuckle Springs area. Bull trout currently occur in the upper portion of the Middle Fork Willamette River as a result of transplanted fry from Anderson Creek in the McKenzie River, and this is considered a rehabilitated local population. The following Middle Fork tributaries are included: Swift Creek from its confluence with the Middle Fork Willamette River upstream 14.7 km (9.1 mi) to its headwaters; and Bear Creek from its confluence with Swift Creek upstream 3.2 km (2 mi).

(9) Unit 5: Hood River Basin

The Hood River unit includes the mainstem Hood River and three major tributaries: the Clear Branch Hood River, West Fork Hood River, and East Fork Hood River. A total of 178.0 km (110.3 mi) of stream, representing 21 percent of the total stream lengths in this unit, is proposed for critical habitat. Although the recovery unit includes the Sandy River, which is known to be occupied based on recent sightings, there is insufficient information at present to identify local populations, or describe bull trout habitat use in the Sandy River subbasin; therefore no critical habitat is proposed for designation in this subbasin. Portions of the mainstem Columbia River utilized by Hood River bull trout are considered in the mainstem Columbia River section of this document.

The Hood River unit, located on the western slopes of the Cascades Mountains in northwest Oregon, lies entirely within Hood River County, Oregon. Landownership adjacent to stream reaches proposed for critical habitat within the Hood River unit includes: 48 percent Federal land, 1 percent State land, and 51 percent private land. Currently, there are two local populations (Clear Branch Hood River above Clear Branch Dam, and Hood River and tributaries below Clear Branch Dam) identified as essential to recovery (USFWS 2002). Also identified are two additional areas (West Fork Hood River and East Fork Hood River), where additional local populations essential for bull trout recovery are recommended to be established. Presently, bull trout in the Hood River basin are believed to be at substantial risk, numbering less than 300 adult fish, emphasizing the need to establish additional local populations (USFWS 2002).

(i) Hood River from the Columbia River upstream 23.7 km (14.7 mi) to its confluence with the east and middle forks provides FMO habitat as well as connectivity with the mainstem Columbia River.

(ii) West Fork Hood River from the Hood River confluence upstream 23.2 km (14.4 mi) to the confluence with Elk and McGee creeks provides FMO habitat. Current occupancy is confirmed from sightings at the fish ladder on Punchbowl Falls and from trap information (USFWS 2002). This habitat is essential for establishing additional reproducing local population(s) in the west fork (and east fork), which is essential to the long-term conservation of the species (USFWS 2002).

(iii) Lake Branch Hood River from the confluence with the west fork upstream 4.2 km (2.6 mi) to the confluence with Laurel Creek. Establishing additional local population(s) in the west and east fork is identified as an action necessary to achieve recovery (USFWS 2002). Lake Branch would serve as FMO habitat linking Laurel and Divers creeks, both of which were identified in U.S. Forest Service (USFS1996a) as having suitable water temperatures to provide spawning habitat. Divers Creek from the Lake Branch confluence upstream approximately 5.6 km (3.5 mi) to its headwaters is essential to provide spawning habitat to support additional local populations necessary to achieve recovery, as identified in the Draft Recovery Plan (USFWS 2002). Laurel Creek from the Lake Branch confluence upstream approximately 5.8 km (3.6 mi) to its headwaters is essential to provide potential spawning habitat for supporting additional local populations in this unit (USFWS 2002).

(iv) Red Hill Creek from the west fork confluence upstream approximately 5.5 km (3.4 mi) to its headwaters is essential to provide spawning habitat to support additional local populations, identified as essential to recovery (USFWS 2002). Elk Creek from the west fork confluence upstream 6.6 km (4.1 mi) to its headwaters also provides potential spawning habitat to support a population that is identified in the Draft Recovery Plan as essential to achieve recovery (USFWS 2002).

(v) East Fork Hood River from the Hood River confluence upstream 44.1 km (27.4 mi) to its headwaters is essential to provide FMO habitat to support additional local populations necessary to achieve long-term conservation of the species (USFWS 2002). Streams with habitat conditions for expanding bull trout spawning and rearing habitat have yet to be identified in the east fork subwatershed. Griswell Creek from the confluence with the east fork upstream 0.6 km (0.4 mi) to the Evans Creek confluence provides FMO habitat between Evans Creek, which is known to be occupied (Buchanan *et al.* 1997; USFWS 2002), and the East Fork Hood River, and potentially with spawning habitat essential to establish additional local populations necessary for recovery (USFWS 2002). Evans Creek from the confluence with Griswell Creek upstream 12.9 km (8.0 mi) to its headwaters is known to be occupied (Buchanan *et al.* 1997; USFWS 2002), and provides FMO habitat at a minimum, and possibly spawning and/or juvenile rearing habitat.

(vi) Middle Fork Hood River from the Hood River confluence upstream 15.4 km (9.6 mi) to the confluence with Coe Branch provides spawning and rearing habitat for the Hood River local population. Bear Creek from the Middle Fork Hood River confluence upstream 1.3 km (0.8 mi) to the confluence with an unnamed tributary is occupied and provides spawning and rearing habitat for the Hood River local population. Elliot Creek from the Middle Fork Hood

River confluence upstream 1.3 km (0.8 mi) to the confluence with Elliot Ditch is occupied and provides spawning and rearing habitat for the Hood River local population. Coe Branch from the Middle Fork Hood River confluence upstream 3.9 km (2.4 mi) to the confluence with Compass Creek is currently occupied, provides FMO habitat for the Hood River local population, and provides connectivity between spawning and rearing habitat in Compass Creek and the Middle Fork Hood River. Compass Creek from the confluence with Coe Branch upstream 4.3 km (2.7 mi) to the headwaters provides spawning and rearing habitat for the Hood River local population.

(vii) Clear Branch from the confluence with the Middle Fork Hood River upstream 1.4 km (0.9 mi) to Clear Branch Dam provides FMO habitat. Clear Branch above Laurance Lake upstream 5.0 km (3.1 mi) to the confluence with two unnamed tributaries is occupied habitat providing spawning and rearing habitat for the Clear Branch local population. Laurance Lake, with an area of 37 ha (91 ac) provides rearing habitat for the Clear Branch local population. Pinnacle Creek from the confluence with Laurance Lake upstream 3.25 km (2.02 mi) to a gradient barrier is occupied and provides spawning and rearing habitat for the Clear Branch local population.

(10) Unit 6: Deschutes River Basin

Two CHSUs, the lower Deschutes and the upper Deschutes, separated by Big Falls, an impassible barrier on the Deschutes River at rkm 211.4 (rmi 131.4) (Stuart *et al.* 1997), comprise this unit.

(i) Lower Deschutes CHSU

The Lower Deschutes CHSU is in Wasco, Sherman, Jefferson, Deschutes, and Crook Counties in central Oregon. Approximately 576 km (358 mi) of stream in the lower Deschutes River basin is proposed for critical habitat designation. Approximately 23 percent of the proposed streams are located on Federal lands, 44 percent on private lands, 32 percent on Confederated Tribes of Warm Springs Reservation of Oregon lands, and 1 percent on State lands. There are five known local populations in the lower Deschutes basin; all are identified as essential to the long-term conservation of the species (USFWS 2002). Local populations of bull trout that occupy this area include the Warm Springs, Shitike Creek, Whitewater River, Jefferson/Candle/Abbot complex, and Canyon/Jack/Heising/mainstem Metolious complex. The following stream segments are included in this CHSU.

(A) The Deschutes River from its mouth at the Columbia River at rkm 329.8 (rmi 204.8) upstream 211.6 km (131.5 mi) provides FMO habitat for bull trout (Buchanan *et al.* 1997). The Deschutes River is important migration habitat connecting the local populations in the lower portion of the river, as well as providing rearing and foraging habitat. Pelton Reservoir (70 ha (174 ac)), Lake Simtustus (84.65 ha (236.6 ac)), and Lake Billy Chinook (1,543 ha (3,813 ac)) are created reservoirs on the Deschutes River, and are included as FMO habitat. Currently, there is no operating fish passage through the dams. Creation of a fish passage mechanism is being planned for future operation of the dams. Lake Billy Chinook provides important foraging and overwintering habitat for an adfluvial population which spawns in the Metolius River.

(B) Warm Springs River from its confluence with the Deschutes River at rkm 134.2 upstream 45.4 km (28.2 mi) contains FMO habitat. From rkm 45.5 upstream 28.0 km (17.4 mi) to its confluence with Dry Creek at rkm 73.6 spawning and rearing habitat occurs. This reach is interspersed with reaches on the Warm Springs Indian Reservation that are not included as proposed critical habitat due to their management as ''Conditional Use Areas,'' such that special management considerations or protections are not necessary. Bunchgrass Creek provides spawning and rearing habitat from its confluence with the Warm Spring River at rkm 62.8 upstream 10 km (6.2 mi) to its source at Cold Spring (Buchanan *et al.* 1997).

(C) Shitike Creek from its confluence with the Deschutes River at rkm 155.0 upstream 14.6 km (9.1 mi) provides FMO habitat. From rkm 14.6 upstream 36.8 km (22.9 mi) is spawning and rearing habitat (Buchanan *et al.* 1997).

(D) Crooked River from its confluence with Lake Billy Chinook at rkm 189.9 upstream 1 km (0.62 mi) to Opal Springs Dam contains FMO habitat known to be occupied. From Opal Springs dam upstream 62.5 km (38.8 mi) to the city of Prineville, FMO habitat of unknown occupancy exists. A few records of bull trout have been made (Buchanan *et al.* 1997) and at least in part due to cold water springs along the length of Crooked River Gorge, the habitat is currently adequate for bull trout. Fish passage was not provided when the dam was enlarged in 1983, so there has been no record of bull trout above the dam since that time (Buchanan *et al.* 1997). However, habitat connectivity and habitat for migration in the Crooked River, which can be established by creating fish passage through Opal Springs Dam, is essential for the long-term conservation of the species (USFWS 2002).

(E) Metolius River from its confluence with Lake Billy Chinook at rkm 195.3 upstream 37.2 km (23.1 mi) to the confluence with Jack Creek contains FMO habitat (Buchanan *et al.* 1997).

(F) Whitewater River from its confluence with the Metolius River at rkm 9.2 (rmi 5.7) upstream 17 km (10.6 mi) to its source provides spawning and rearing habitat (Buchanan *et al.* 1997).

(G) Jefferson Creek from its confluence with the Metolius River at rkm 25.5 (rmi 15.8) upstream 14.5 km (9 mi) to an impassable waterfall (Buchanan *et al.* 1997); an unnamed tributary to Jefferson Creek at rkm 10.4 (rmi 6.5) upstream 0.8 km (0.5 mi) to its source; Parker Creek from its confluence with Jefferson Creek at rkm 12.3 (rmi 7.6) upstream 0.6 km (0.4 mi); Candle Creek from its confluence with the Metolius River at rkm 25.7 (rmi 16.0) upstream 6.1 km (3.8 mi) to Cabot Creek; and Abbot Creek from its confluence with the Metolius River at rkm 26.3 (rmi 16.3) upstream 5.3 km (3.3 mi) to its source spring on the south east side of Abbot Butte contain spawning and rearing habitat (ODFW 2002).

(H) Metolius River from its confluence with Jack Creek upstream 7.2 km (4.5 mi) to the two springs at its source; Canyon Creek from its confluence with the Metolius River at rkm 36.1 (rmi 22.4) upstream 8.8 km (5.5 mi) to USFS road 1235; an unnamed tributary to Canyon Creek which is east of, and parallel to, Brush Creek upstream 3.4 km (2.1 mi); Brush Creek from its confluence with Canyon Creek at rkm 1.5 (rmi 0.9) upstream 6.1 km (3.8 mi) to USFS road 1230; Roaring Creek from its confluence with Canyon Creek at rkm 3.9 (rmi 2.4) upstream 2.9 km (1.8 mi) to two forks; up the north fork to the source springs and up the west fork to the intersection of USFS roads 1260 and 1230; Jack Creek from its confluence with the Metolius River at rkm 37.3 (rmi 23.2) upstream 7.4 km (4.6 mi) to its source springs (Buchanan *et al.* 1997); and Heising Spring from its confluence with the Metolius River near the mouth of Jack Creek upstream 0.2 km (0.12 mi) to its source (ODFW 2002) contain spawning and rearing habitat.

(I) The Lake Creek stream system is composed of a reverse dendritic (branching like a tree) pattern: As Lake Creek flows downstream, it splits into the North Fork, Middle Fork, and South Fork; the North Fork flows directly into the Metolius River; the South Fork and

Middle Fork flow back together again before entering the Metolius River. Lake Creek, including North Fork Lake Creek from its confluence with the Metolius River at rkm 41.8 (rmi 26.0) upstream 5.6 km (3.5 mi) to its confluence with Lake Creek; Middle Fork Lake Creek from its confluence with the Metolius River at rkm 42.3 (rmi 26.3) upstream 5.6 km (3.5 mi) to Lake Creek; South Fork Lake Creek from its confluence with Middle Fork Lake Creek at rkm 2.5 (rmi 15.5) upstream 4 km (2.5 mi) to Lake Creek; Lake Creek form its confluence with North, Middle, and South Fork Lake Creek upstream 2.4 km (1.5 mi) to Suttle Lake; and Suttle Lake (105 ha (259 ac)) contain FMO habitat of unknown occupancy. Link Creek from Suttle Lake upstream 1 km (0.6 mi) to Blue Lake is suitable spawning and rearing habitat of unknown occupancy; Blue Lake (22 ha (55 ac)) is FMO habitat of unknown occupancy. Together, these streams and lakes are identified as habitat essential to supporting an additional bull trout population necesssary to provide for the recovered distribution of bull trout (USFWS 2002).

(J) Squaw Creek from its confluence with the Deschutes River at rkm 195.8 (rmi 121.6) upstream 2.4 km (1.5 mi) to Alder Spring provides FMO habitat (Buchanan *et al.* 1997). Restoring connectivity is an essential element for the long-term conservation of the species (USFWS 2002).

(ii) Upper Deschutes CHSU

The upper Deschutes River CHSU is located in Deschutes, Crook, and Klamath counties in central Oregon. Approximately 225.4 km (140.1 mi) of stream in the upper Deschutes River basin is proposed for critical habitat designation. Approximately 64 percent of the proposed streams are located on Federal lands, 35 percent on private lands, and 1 percent are on State lands. Bull trout are not currently known to occur in this area. Preliminary investigations and historic information indicate that habitat for bull trout is currently present (Riehle and Nolte 1992). The Draft Recovery Plan (USFWS 2002) identifies the historic habitat in the upper Deschutes basin as core habitat (*i.e.*, habitat that contains the essential physical elements for bull trout to persist and that is deemed critical to recovery), and as a priority one recovery need, but does not identify the number of local populations needed for recovery. The plan calls for a study to determine the feasibility of re-introduction of bull trout in the upper Deschutes River basin. The following stream segments are included in the proposed critical habitat designation because a designation limited to the areas currently occupied would be inadequate to ensure the conservation of the species (50 CFR 242.12(e).

(A) The Deschutes River from Wickiup Reservoir upstream 12.4 km (7.7 mi) to its source at Lava Lake; Little Deschutes River from its confluence with Crescent Creek at rkm 59.6 (rmi 37.0) upstream 31.5 km (19.6 mi) to the intersection with Highway 58, and from there upstream 23.7 km (14.7 mi) to its source at rkm 114.9 (rmi 71.4); ; Crescent Creek from its confluence with the Little Deschutes River upstream 25.4 km (15.8 mi) to the intersection with USFS road 61; Big Marsh Creek from its confluence with Crescent Creek at rkm 31.9 (rmi 19.8) upstream 12.9 km (8 mi) through the marsh at rkm 9.4 (rmi 5.8), and from the marsh upstream 10 km (6.2 mi) to its source at rkm 22.8 (rmi 14.2); ; Crescent Lake (1,488 ha (3,676 ac)); Wickiup Reservoir (4,103 ha (10,139 ac)); Crane Prairie Reservoir (1,675 ha (4,139 ac)); Little Lava Lake (53 ha (130 ac)); and Lava Lake (139 ha (344 ac)) contain FMO habitat not currently known to be occupied (Buchanan *et al.* 1997) but deemed essential to the long-term conservation of the species (USFWS 2002;).

(B) Crescent Creek from the intersection with USFS road 61 at rkm 25.5 (rmi 15.8) upstream 15.8 km (9.8 mi) to Crescent Lake; Cold Creek from its confluence with Crescent Creek upstream 3.9 km (2.4 mi) to its spring source near the railroad tracks; Whitefish Creek from its confluence with Crescent Lake upstream 8.2 km (5.1 mi) to a water fall; and Refrigerator Creek from its confluence with Big Marsh Creek upstream 6.1 km (3.8 mi) to its source contain spawning and rearing habitat not currently known to be occupied but deemed essential to the long-term conservation of the species (USFWS 2002).

(C) Hemlock Creek from its confluence with the Little Deschutes River upstream 8.9 km (5.5 mi) to its source; Spruce Creek from its confluence with Hemlock Creek upstream 6.3 km (3.9 mi) to its source; and Fall River from its confluence with the Little Deschutes River upstream 14.2 km (8.8 mi) to its source contains spawning and rearing habitat not currently known to be occupied but deemed essential to the long-term conservation of the species (USFWS 2002).

(D) North Davis Creek from its confluence with Wickiup Reservoir upstream 1 km (0.6 mi) to its source; Browns Creek from its confluence with Wickiup Reservoir upstream 19.8 km (12.3 mi) to its spring source; Quin River from its confluence with Crane Prairie Reservoir upstream 0.3 km (0.2 mi) to its spring source; Cultus River from its confluence with Crane Prairie Reservoir upstream 13.5 km (8.4 mi) to its spring source; and Snow Creek from its confluence with the Deschutes River at rkm 375.4 (rmi 233.1) upstream 7.4 km (4.6 mi) to its spring source contain spawning and rearing habitat not currently known to be occupied but deemed essential to the long-term conservation of the species (USFWS 2002).

(11) Unit 7: Odell Lake

The Odell Lake Unit lies entirely within the Deschutes National Forest in Deschutes and Klamath counties. Total proposed critical habitat in this unit includes approximately 2,675 ha (6,611 ac) of lakes and 18.1 km (11.3 mi) of streams. The following lake area and stream segments are included in this critical habitat unit:

(i) Odell Lake, approximately 1,457 ha (3,600 ac) in surface area within the lake shoreline as depicted on a 1:24,000 scale map. Odell Lake is the primary FMO habitat for this adfluvial bull trout population.

(ii) Trapper Creek from its mouth at the confluence with Odell Lake to rkm 4.0 (rmi 2.5) at the confluence of two spring-fed tributaries which form its headwaters. Trapper Creek is the only tributary to Odell Lake where bull trout spawning and rearing is currently known to occur.

(iii) Crystal Creek from its mouth at the confluence with Odell Lake to its headwater springs at approximately rkm 2.4 (rmi 1.5). Crystal Creek historically supported bull trout spawning and maintains many of the habitat elements essential to the conservation of bull trout. Establishment of an appropriate additional spawning population in the area at Crystal Creek is essential to the long-term conservation of the species (USFWS 2002).

(iv) Odell Creek from its confluence with Odell Lake downstream 11.7 km (7.3 mi) to its confluence with Davis Lake. This area is included in this proposal because it currently is foraging habitat for the population that spawns in Trapper Creek that is essential to the long-term conservation of the species, and also because it provides additional spawning habitat that is essential to the long-term conservation of the species (USFWS 2002).

(v) Davis Lake (1,218 ha; 3,011 ac) is historical habitat that may currently provide FMO habitat for bull trout, and is essential to supporting a larger, more resilient bull trout population that is essential to the conservation of the

species (T. Wise, ODFW, pers. Comm., 2002; N. Dachtler, USFS, pers. Comm., 2002).

(12) Unit 8: John Day River Basin

The John Day River unit in the John Day River Basin in eastern Oregon includes portions of the mainstem John Day River, the North Fork John Day River, the Middle Fork John Day River and their tributary streams in Wheeler, Grant, and Umatilla counties, Oregon. A total of 1,080 km (671 mi) of stream is proposed for critical habitat. Landownership along the stream reaches proposed for critical habitat within the John Day River critical habitat unit includes approximately 54 percent Federal land, less than 1 percent State land, and 46 percent privately owned land.

Currently, there are three subpopulations recognized in the basin (Buchanan *et al.* 1997): the upper John Day basin including tributary streams; the North Fork John Day River including tributary streams; and the Middle Fork John Day and its tributary. The three subpopulation areas all flow together with no physical barriers between them, except for barriers as a seasonal consequence of low flow and high stream temperatures during summer that may limit the seasonal distribution of individuals. All proposed critical habitat designations are essential to the long-term conservation of the species (USFWS 2002). The following stream segments are included in this unit.

(i) Upper John Day River from its confluence with the North Fork John Day River at rkm 290.9 (rmi 180.6) to its confluence with Reynolds Creek at rkm 424.7 (rmi 263.7) provides FMO habitat. From Reynolds Creek upstream 20.4 km (12.7 mi) to its source there is occupied spawning and rearing habitat (Buchanan *et al.*1997; Hemmingsen *et al.* 2001a,b,c,d). Canyon Creek from its confluence with the John Day River at rkm 389.8 (rmi 242.1) upstream 43.8 km (27.2 mi) to its source, and Pine Creek from its confluence with the John Day River at rkm 401.9 (rmi 249.6) upstream 16.7 km (10.4 mi) to its source, are habitat areas that provide for expansion of bull trout populations in the upper sub-basin, which is essential for long-term conservation of the species (USFWS 2002). Indian Creek from its confluence with the John Day River at rkm 404.2 (rmi 251.0) upstream 19.2 km (11.9 mi) to its source contains spawning and rearing habitat. Bull trout are known to occur in Indian Creek (Claire and Gray, unpublished 1993; Buchanan *et al.* 1997), but a large fire in the Indian Creek watershed in 1996 may have negatively impacted the bull trout population. Reestablishing this population is essential to the long-term conservation of the species (USFWS 2002). Strawberry Creek from its confluence with the John Day River at rkm 413.1 (rmi 256.5) upstream 13.7 km (8.5 mi) to the USFS boundary contains suitable FMO habitat, and from the USFS boundary upstream 7.6 km (4.7 mi) to its source contains suitable spawning and rearing habitat. Strawberry Creek is identified as stream habitat to allow for expansion of bull trout populations in the upper watershed, an action deemed essential to the long-term conservation of the species (USFWS 2002). Reynolds Creek from its confluence with the John Day River at rkm 424.7 (rmi 263.7) upstream 14.8 km (9.2 mi) to its source, and North Fork Reynolds Creek from its confluence with Reynolds Creek at rkm 6.4 (4.0 mi) upstream 11.9 km (7.4 mi) to its source contain occupied spawning and rearing habitat (Buchanan *et al.* 1997). Deardorff Creek from its confluence with the John Day River at rkm 426.8 (rmi 265.0) upstream 15.4 km (9.6 mi) to its source (Buchanan *et al.* 1997; Hemmingsen *et al.* 2001a,b,c,d), Rail Creek from its confluence with the John Day River at rkm 432.1 (rmi 268.3) upstream 11.4 km (7.1 mi) to its source (Buchanan *et al.* 1997), Roberts Creek from its confluence with the John Day River at rkm 432.2 (rmi 268.4) upstream 8.8 km (5.5 mi) to its source (Buchanan *et al.* 1997; Hemmingsen *et al.* 2001a,b,c,d), and Call Creek from its confluence with the John Day River at rkm 436.2 (rmi 270.9) upstream 5.9 km (3.7 mi) to its source (Buchanan *et al.* 1997; Hemmingsen *et al.* 2001a,b,c,d) contain occupied spawning and rearing habitat.

(ii) North Fork John Day River from the confluence with the John Day River at rkm 290.9 (rmi 180.6) upstream 137 km (85 mi) to Granite Creek contains occupied FMO habitat. From Granite Creek upstream 38.5 km (23.9 mi) to its source contains occupied spawning and rearing habitat. West Fork Meadow Brook Creek from its confluence with North Fork John Day River at rkm 93.8 (rmi 58.2) upstream 4.5 km (2.8 mi) to East Fork Meadow Brook Creek contains occupied FMO habitat. East Fork Meadow Brook Creek from its confluence with the West Fork Meadow Brook Creek upstream 18 km (11.2 mi) to its source is occupied spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997). Desolation Creek from its confluence with North Fork John Day River at rkm 94.5 (rmi 58.7) upstream 8.7 km (5.4 mi) is known FMO habitat. From this point upstream 24.6 km (15.3 mi) to its source contains occupied spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997). North Fork Desolation Creek from its confluence with Desolation Creek at rkm 33.3 (rmi 20.7) upstream 10.5 km (6.5 mi) to its source is historic spawning and rearing habitat from which bull trout have probably been extirpated (Buchanan *et al.* 1997; ODFW 2001). This reach is identified as habitat essential for the long-term conservation of bull trout (USFWS 2002). South Fork Desolation Creek from its confluence with Desolation Creek at rkm 33.3 (rmi 20.7) upstream 14.0 km (8.7 mi) to its source contains occupied spawning and rearing habitat (Buchanan *et al.* 1997). Big Creek from its confluence with the North Fork John Day River at rkm 119.3 (rmi 74.1) upstream 2.1 km (1.3 mi) to its confluence with Winom Creek provides occupied spawning and rearing habitat (ODFW 1996). Winom Creek from its confluence with Big Creek at rkm 2.0 (rmi 1.2) upstream 12.0 km (7.4 mi) to its source contains occupied spawning and rearing habitat (ODFW 1996). Granite Creek from its confluence with North Fork John Day River at rkm 136.7 (rmi 84.9) upstream 25.4 km (15.8 mi) to its source is known historic spawning and rearing habitat (Buchanan *et al.* 1997) identified as essential for the long-term conservation of bull trout (USFWS 2002). Clear Creek from its confluence with the Granite Creek at rkm 12.0 (rmi 7.5) upstream 33.0 km (20.5 mi) to its source, and Lightning Creek from its confluence with Clear Creek upstream 4.8 km (3.0 mi) to its source contain spawning and rearing habitat (ODFW 1996). West Fork Clear Creek from its confluence with Lightning Creek at rkm 2.7 (rmi 1.7) upstream 7.2 km (4.5 mi) to its source, and Salmon Creek from its confluence with Lightning Creek at rkm 4.9 (rmi 3.0) upstream 3.2 km (2.0 mi) contain spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997). Bull Run Creek from its confluence with Granite Creek at rkm 14.9 (rmi 9.3) upstream 20.6 km (12.8 mi) to its source provides occupied FMO habitat (ODFW 1996; ODFW 2001). Boundary Creek from its confluence with Bull Run Creek at rkm 16.4 (rmi 10.2) upstream 4.0 km (2.5 mi) to its source, and Deep Creek from its confluence with Bull Run Creek at rkm 7.2 (rmi 4.5) upstream 5.6 km (3.5 mi) to its source contain spawning and rearing habitat (ODFW 1996; ODFW 2001). Boulder Creek from its confluence with Granite Creek at rkm 16.4 (rmi 10.2) upstream 8.2 km (5.1 mi) to its source provides spawning and rearing habitat (Buchanan *et al.* 1997;

ODFW 2001). Crane Creek from its confluence with North Fork John Day River at rkm 147.7 (rmi 91.7) upstream 20.9 km (13.0 mi) provides FMO habitat. From this point upstream 12.7 km (7.9 mi) to its source, there is spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997; ODFW 2001). Trail Creek from its confluence with the North Fork John Day River at rkm 156.9 (rmi 97.4) upstream 2.9 km (1.8 mi) to its confluence with North Trail Creek, and South Trail Creek contains FMO habitat (ODFW 1996; Buchanan *et al.* 1997), with bull trout presence documented both above and below this reach. South Trail Creek from its confluence with Trail Creek at rkm 2.9 (rmi 1.8) upstream 10.5 km (6.5 mi) to its source provides spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997; ODFW 2001). Onion Creek from its confluence with the North Fork John Day River at rkm 157.5 (rmi 97.8) upstream to its source contains spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997). Baldy Creek from its confluence with the North Fork John Day River at rkm 164.8 (rmi 102.3) upstream 7.9 km (4.9 mi), including a fork to the east and to its spring source, contains spawning and rearing habitat. Crawfish Creek from its confluence with North Fork John Day River at rkm 166.6 (rmi 103.5) upstream 8.4 km (5.2 mi) to its source provides spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997; ODFW 2001). Cunningham Creek from its confluence with North Fork John Day River at rkm 169.7 (rmi 105.4) upstream 2.9 km (1.8 mi) to its source contains spawning and rearing habitat (ODFW 1996; Buchanan *et al.* 1997).

(iii) Middle Fork John Day River from its confluence with the North Fork John Day River at rkm 50.4 (rmi 31.3) to its source is known FMO habitat (Buchanan *et al.* 1997). Indian Creek from its confluence with the Middle Fork John Day River at rkm 54.8 (rmi 34.0) upstream 21.7 km (13.5 mi) to its source is known historic spawning and rearing habitat, but is suspected to be currently unoccupied (Buchanan *et al.* 1997). This reach is necessary to provide for the recovered distribution of bull trout (USFWS 2002). Big Creek from its confluence with the Middle Fork John Day River at rkm 60.4 (rmi 37.5) upstream 20.6 km (12.8 mi) to its source, and Deadwood Creek from its confluence with Big Creek at rkm 7.4 (rmi 4.6) upstream approximately 7.1 km (4.4 mi) contain occupied spawning and rearing habitat (Buchanan *et al.* 1997). Big Boulder Creek from its confluence with the Middle Fork John Day River at rkm 83.8 (rmi 52.0) upstream 10.3 km (6.4 mi) to its source is known historic spawning and rearing habitat, suspected to be currently unoccupied (Buchanan *et al.* 1997), and necessary to provide for the recovered distribution of bull trout (USFWS 2002). Granite Boulder Creek from its confluence with the Middle Fork John Day River at rkm 89.4 (rmi 55.5) upstream 13 km (8.1 mi) to a barrier falls is occupied spawning and rearing habitat (Buchanan *et al.* 1997). Butte Creek from its confluence with the Middle Fork John Day River at rkm 90.4 (rmi 56.1) upstream 7.7 km (4.8 mi) to its source is historic spawning and rearing habitat and is identified as essential habitat for the long-term conservation of bull trout (USFWS 2002). Davis Creek from its confluence with the Middle Fork John Day River at rkm 101.3 (rmi 62.9) upstream 10.8 km (6.7 mi) also contains spawning and rearing habitat essential for the long-term conservation of bull trout (USFWS 2002). Vinegar Creek from its confluence with the Middle Fork John Day River at rkm 102.5 (rmi 63.7) upstream to its source is occupied spawning and rearing habitat ((Seals, unpublished 2000), and also is identified as habitat essential for the long-term conservation of bull trout (USFWS 2002). Clear Creek from its confluence with the Middle Fork John Day River at rkm 104.8 (rmi 65.1) upstream 20.1 km (12.5 mi) to its source is occupied spawning and rearing habitat (Buchanan *et al.* 1997).

(iv) Dry Creek from its confluence with Pine Creek at rkm 9.59 (rmi 5.96) upstream 8.7 km (5.4 mi) to its source is spawning and rearing habitat for an isolated resident group of bull trout (ODFW 1996).

(v) Hideaway Creek from its confluence with Camas Creek at rkm 32.7 (rmi 20.3) upstream to its source is historic habitat (Buchanan *et al.* 1997) that is identified as essential to provide for the recovered distribution of bull trout (USFWS 2002). Cable Creek from its confluence with Camas Creek at rkm 28.3 (rmi 17.6) upstream 11.3 km (7.0 mi) to its source is habitat essential for the recovered distribution of bull trout (USFWS 2002).

(13) Unit 9: Umatilla-Walla Walla River Basins

The Umatilla and Walla Walla Rivers Unit is located in northeastern Oregon and southeastern Washington. The unit includes 636 km (395 mi) of stream extending across portions of Umatilla, Union, and Wallowa counties in Oregon, and Walla Walla and Columbia counties in Washington. Currently, there are four known bull trout local populations in this unit, three in the Walla Walla River Basin, and one in the Umatilla River Basin. The Draft Recovery Plan (USFWS 2002) indicates the need to maintain these four local populations to provide for the recovered distribution of bull trout. Landownership patterns are discussed in the individual CHSU descriptions.

(i) Umatilla CHSU

Approximately 284 km (176.4 mi) of stream has been proposed as critical habitat for bull trout in the Umatilla basin. Landownership within the CHSU is 37 percent Federal, 44 percent private, and 19 percent Tribal. Approximately 55 km (34 mi) of stream within the Umatilla Indian Reservation are proposed as critical habitat. The stream segments that make up the Umatilla CHSU are described below.

(A) The Umatilla River from its confluence with the Columbia River upstream 141.3 km (87.8 mi) to the confluence with the North and South Forks of the Umatilla, and extending 5.8 km (3.6 mi) up Squaw Creek, and 3.2 km (2.0 mi) up Ryan Creek. The lower 120 km (75 mi) of the Umatilla River below Squaw Creek provides important habitat for foraging, overwintering, and seasonal subadult rearing for an existing bull trout local population that spawn in upper portions of the Umatilla and Meacham Creek drainages. It also serves as a corridor for movement to the Columbia River. Subadult rearing, and potentially spawning, occurs in Squaw Creek, Ryan Creek, and the Umatilla River above Squaw Creek.

(B) Meacham Creek from its confluence with the Umatilla River upstream 34.5 km (21.4 mi) and extending up the following tributaries: North Fork Meacham Creek for a distance of 16 km (10 mi), including 4.8 km (3.0 mi) of Pot Creek, and East Fork Meacham Creek for a distance of 3.8 km (2.4 mi). Lower portions of Meacham and North Fork Meacham Creeks provide foraging and overwintering habitat, as well as a migratory corridor to the Umatilla River. Spawning and rearing has been documented in upper portions of North Fork Meacham Creek, and in the identified reach of Pot Creek. Suitable spawning and rearing habitat exists in the upper portion of Meacham Creek and in East Fork Meacham Creek, but bull trout have not been observed there in recent years (Germond *et al.* 1996).

(C) The North Fork Umatilla River from its confluence with the South Fork upstream 16.6 km (10.3 mi) to its headwaters and extending 1.6 km (1.0 mi) up Coyote Creek and 1.6 km (1.0 mi)

up Woodward Creek. This area supports the highest concentrations of spawning bull trout in the Umatilla Basin (Germond *et al.* 1996; Buchanan *et al.* 1997).

(D) The South Fork Umatilla River from its confluence with the North Fork upstream 17.4 km (10.8 mi) to its headwaters and extending 11.1 km (6.9 mi) up Buck Creek, 8.8 km (5.5 mi) up Thomas Creek, 8.2 km (5.1 mi) up Spring Creek, and 9.2 km (5.7 mi) up Shimmiehorn Creek. These drainages are used by rearing and resident bull trout and spawning was observed in the South Fork Umatilla in the early 1990s (Germond *et al.* 1996).

(ii) Walla Walla CHSU

Approximately 351.6 km (218.5 mi) of stream has been proposed as critical habitat to support the three bull trout local populations in the Walla Walla basin. Landownership within the CHSU is approximately 28 percent Federal, 69 percent private, and 3 percent State. The stream segments that make up the Walla Walla CHSU are described below.

(A) The Walla Walla River from its confluence with Mill Creek upstream 27.3 km (17.0 mi) to the confluence with the North and South Forks of the Walla Walla. Lower sections provide foraging and overwintering habitat, and a migratory connection to Mill Creek, and spawning and rearing habitat is present from above the town of Milton-Freewater to the forks.

(B) The North Fork Walla Walla River from its confluence with the South Fork upstream 29.7 km (18.4 mi) to its headwaters. This reach provides suitable spawning and rearing habitat, and evidence of bull trout spawning was observed there in 2000 (T. Bailey, ODFW, pers. comm., 2002).

(C) The South Fork Walla Walla River from its confluence with the North Fork upstream 42.7 km (26.5 mi) to its headwaters and extending 2.6 km (1.6 mi) up Skiphorton Creek, 3.6 km (2.2 mi) up Reser Creek, 2.2 km (1.4 mi) up Husky Spring Creek, and 1.8 km (1.1 mi) up an unnamed tributary that forks off the South Fork Walla Walla River at rkm 117.9 (rmi 73.2). These stream reaches contain occupied spawning and rearing habitat that supports the upper Walla Walla local population.

(D) Mill Creek from its confluence with the Walla Walla River upstream 54.7 km (32.0 mi) to its headwaters; Yellowhawk Creek from its confluence with Mill Creek upstream 13.6 km (8.4 mi); Garrison Creek from its confluence with Mill Creek upstream 15.4 km (9.6 mi); Low Creek from its confluence with Mill Creek upstream 3.2 km (2.0 mi); Paradise Creek from its confluence with Mill Creek upstream for a distance of 2.2 km (1.4 mi); North Fork Mill Creek from its confluence with Mill Creek upstream 0.8 km (0.5 mi); Deadman Creek from its confluence with North Fork Mill Creek upstream for a distance of 0.5 km (0.3 mi); Burnt Fork Creek from its confluence with North Fork Mill Creek upstream for a distance of 1.6 km (1.0 mi); Green Fork Creek from its confluence with North Fork Mill Creek upstream for a distance of 0.8 km (0.5 mi); and Bull Creek from its confluence with North Fork Mill Creek upstream for a distance of 0.7 km (0.4 mi). The lower 44 km (27 mi) of Mill Creek, Yellowhawk Creek, and Garrison Creek provide foraging and overwintering habitat for adult bull trout, as well as providing connectivity to the Walla Walla River. Upper Mill Creek and the other tributaries named above are occupied spawning and rearing areas.

(E) The Touchet River from its confluence with Coppei Creek at rkm 69.2 (rmi 43.0) upstream 21.1 km (13.1 mi) to the confluence with the North and South Forks of the Touchet. This reach provides foraging and overwintering habitat for fluvial bull trout that spawn upstream.

(F) North Fork Touchet River from its confluence with the South Fork upstream 31.7 km (19.7 mi) to its headwaters; Wolf Fork Touchet River from its confluence with the North Fork Touchet River upstream 25.3 km (15.7 mi) and extending up into Robinson Creek for a distance of 17.3 km (10.7 mi); Lewis Creek from its confluence with the North Fork Touchet River upstream 7.9 km (4.9 mi); and Spangler Creek from its confluence with the North Fork Touchet River upstream 6.6 km (4.1 mi). The lower 6 km (3.7 mi) of the North Fork, the lower 12 km (7.5 mi) of the Wolf Fork, and Robinson Creek are utilized by bull trout for foraging and overwintering; they also provide connectivity to the South Fork. The North Fork above its confluence with the Wolf Fork, and portions of the Wolf Fork above Whitney Creek are documented spawning and rearing areas. Lewis and Spangler creeks also contain occupied spawning and rearing habitat.

(G) South Fork Touchet River from its confluence with the North Fork upstream 24.6 km (15.3 mi) to its headwaters; Griffin Fork from its confluence with the South Fork Touchet River upstream 6.2 km (3.9 mi) and including 3.2 km (2.0 mi) of an unnamed tributary that enters Griffin Fork from the north; and Burnt Fork from its confluence with the South Fork Touchet River upstream 4.3 km (2.7 mi). Bull trout are known to spawn in Griffin Fork and Burnt Fork and utilize the South Fork for foraging and overwintering habitat as well as passage to the North Fork Touchet River.

(14) Unit 10: Grande Ronde River Basin

The Grande Ronde Unit extends across Union, Wallowa, and Umatilla counties in northeastern Oregon, and Asotin, Columbia, and Garfield counties in southeastern Washington. Approximately 1,030 km (640 mi) of stream in the Grande Ronde River basin is proposed for critical habitat designation. The unit includes the Grande Ronde River from its headwaters to the confluence with the Snake River and a number of its tributaries, the largest being the Wallowa River. Five bull trout local populations are associated with streams that branch directly off the Grande Ronde River, and three local populations are associated with streams flowing into the Wallowa River. One local population in the upper Little Minam River is isolated by a barrier falls and is not connected to either of the main rivers. The Draft Recovery Plan (USFWS 2002) identifies all nine existing local populations as necessary for recovery, and our proposed critical habitat reflects that need. Approximately 52 percent of the stream miles in the Grande Ronde Unit are on Federal lands, less than 1 percent are on State lands, and 48 percent are on private lands. Of the 537 km (334 mi) of stream proposed for designation on Federal lands, 44 percent are within designated wilderness areas. The stream segments that make up the Grande Ronde Unit are described below.

(i) The Grande Ronde River extending from its confluence with the Snake River upstream 265 km (165 mi) to Meadow Brook Creek provides key foraging, rearing, and overwintering habitat for sub-adult and adult fluvial bull trout and is an important migratory corridor. It is the primary artery that supports and links eight local populations in the Grande Ronde River and Wallowa River basins (Baxter 2002; P. Boehne, USFS, pers. comm., 2002). The Upper Grande Ronde River from the junction with Meadow Brook Creek upstream 19.3 km (12.0 mi) is utilized for spawning and rearing.

(ii) The Wenaha River from its confluence with the Grande Ronde River upstream 34.8 km (21.6 mi) to the junction of the North Fork and South Fork Wenaha River; Crooked Creek from its confluence with the Wenaha River upstream 12.4 km (7.7 mi) to the confluence with Third Creek, extending up First Creek 2.1 km (1.3 mi) to the confluence with Willow Creek, and up Third Creek 5.3 km (3.3 mi) to the

confluence with Trout Creek; Butte Creek from its confluence with the Wenaha River upstream 11.3 km (7.0 mi) to the confluence with East Fork and West Fork Butte Creek; West Fork Butte Creek form its mouth upstream 4.8 km (3 mi) to the confluence with Rainbow Creek; Beaver Creek from its confluence with the Wenaha River upstream 2.5 km (1.5 mi); the North Fork Wenaha River from its junction with the Wenaha River upstream 18.2 km (11.3 mi); South Fork Wenaha River from its junction with the Wenaha River upstream 13.0 km (8.1 mi); and Milk Creek from its mouth at the South Fork Wenaha River upstream 5.2 km (3.2 mi). Collectively, these stream segments support the Wenaha River local population, which is the largest bull trout population in the Grande Ronde basin. The lower 16 km (10 mi) of the Wenaha River provides FMO habitat for fluvial bull trout as well as a migratory connection to the Grande Ronde River. Spawning and rearing has been documented in the upper Wenaha and all of the identified tributary streams (Buchanan *et al.* 1997; ODFW, unpublished 2000; Baxter 2002; B. Knox, ODFW, pers. comm., 2002).

(iii) Lookingglass Creek from its confluence with the Grande Ronde River upstream 24.1 km (15.0 mi) to a barrier falls and extending up Little Lookingglass Creek to the confluence with Buzzard Creek (9.3 km (5.8 mi)), up Mottet Creek for 5.7 km (3.6 mi), and up Summer Creek for 0.6 km (0.3 mi). The Lookingglass Creek system supports a local population and bull trout spawn and rear throughout the identified stream reaches (J. Zakel, ODFW, pers. comm., 2001; D. Groat, USFS, pers. comm., 2002). Lower portions of Lookingglass Creek also provide probable foraging habitat for fluvial fish and a migratory connection to the Grande Ronde River (T. Walters, ODFW, pers. comm., 2002).

(iv) Indian Creek from its confluence with the Grande Ronde River upstream for a distance of 32.6 km (20.3 mi) and extending up two tributary streams: Camp Creek for a distance of 1.2 km (0.7 mi), and East Fork Indian Creek for a distance of 3.1 km (1.9 mi). Indian Creek currently supports a bull trout local population, with spawning and rearing occurring in the upper 15.1 km (9.4 mi) portion of Indian Creek and the identified reaches of Camp Creek and East Fork Indian Creek (Buchanan *et al.* 1997; ODFW, unpublished 2000). The lower section of Indian Creek potentially provides foraging and overwintering habitat for fluvial bull trout as well as a migratory connection to the Grande Ronde River. Bull trout occupancy has not been documented in lower Indian Creek below the National Forest boundary (the lower 17.5 km (10.9 mi); Draft Recovery Plan (USFWS 2002) guidance for this area is to restore riparian zones associated with bull trout habitat below the National Forest boundary to facilitate expansion and stabilization of this bull trout local population, which is essential for the long-term conservation of the species (USFWS 2002).

(v) Catherine Creek from the confluence with the Grande Ronde River upstream for a distance of 81.6 km (50.7 mi) to the junction of North Fork and South Fork Catherine Creek; North Fork Catherine Creek from its mouth at Catherine Creek upstream a distance of 13.8 km (8.6 mi); Middle Fork Catherine Creek form its junction with North Fork Catherine Creek upstream 4.3 km (2.7 mi) to the confluence with Squaw Creek; South Fork Catherine Creek from its junction with Catherine Creek upstream 12.3 km (7.7 mi); Pole Creek from its mouth at South Fork Catherine Creek upstream 5.1 km (3.2 mi) to its headwaters; Sand Pass Creek from its mouth at South Fork Catherine Creek upstream 4.4 km (2.8 mi) to its headwaters; and Collins Creek from its junction with South Fork Catherine Creek upstream 3 km (1.9 mi) to its headwaters. Catherine Creek currently supports a bull trout local population, with spawning and rearing occurring in each of the identified tributary streams and the upper 24.7 km (15.3 mi) of Catherine Creek (Buchanan *et al.* 1997; ODFW, unpublished 2000; P. Boehne, pers. comm. , 2002; J. Zakel, pers. comm., 2002). The lower portion of Catherine Creek is utilized as FMO habitat; bull trout have been observed throughout the mainstem and migratory fluvial fish are present (Buchanan *et al.* 1997; ODFW, unpublished 2000; USFWS 2002).

(vi) Five Points Creek from its confluence with the Grande Ronde River upstream for 21.7 km (13.5 mi) and extending up Middle Fork Five Points Creek for 2.6 km (1.6 mi); Tie Creek from its confluence with Middle Fork Five Points Creek upstream 0.8 km (0.5 mi); Fiddlers Hell Creek from its junction with Middle Fork Five Points Creek upstream (0.8 mi); Mount Emily Creek from its junction with Middle Fork Five Points Creek upstream 2.1 km (1.3 mi); Fly Creek from its confluence with the Grande Ronde River upstream 13.4 km (8.3 mi) to Lookout Creek; Lookout Creek from its mouth upstream 8.5 km (5.3 mi); Sheep Creek from its confluence with the Grande Ronde River upstream 17.1 km (10.6 mi); East Fork Sheep Creek from its mouth upstream 7.4 km (4.6 mi); Chicken Creek from its confluence with Sheep Creek upstream 8.5 km (5.3 mi); Indiana Creek from its mouth at Chicken Creek upstream 3.4 km (2.1 mi); Limber Jim Creek from its confluence with the Grande Ronde River upstream 13.0 km (8.1 mi); Marion Creek form its junction with Limber Jim Creek upstream 3.4 km (2.1 mi); Clear Creek from its confluence with the Grande Ronde River upstream 11.5 km (7.1 mi); and an unnamed tributary which branches off Clear Creek at rkm 6.3 (rmi 3.9) upstream approximately 7.0 km (4.4 mi). The Grande Ronde River above Meadow Brook Creek is utilized for spawning and rearing. The lower portion of Five Points Creek provides FMO habitat. Upper sections of Five Points Creek and the identified tributary streams provide high quality spawning and rearing habitat (P. Boehne, pers. comm., 2002; J. Zakel, pers. comm., 2002) and are identified in the Draft Recovery Plan (USFWS 2002) as areas essential to the long-term conservation of the species. Fly Creek provides FMO habitat for bull trout which spawn and rear in Lookout Creek (P. Boehne, pers. comm., 2002; J. Zakel, pers. comm., 2002). Bull trout have been observed in Lookout Creek up to approximately 0.6 km (1 mi) above USFS Road 5160 (P. Boehne, pers. comm., 2002). Lower portions of Sheep Creek provide needed FMO habitat for fluvial bull trout that spawn and rear in its upper end and its identified tributaries (P. Boehne, pers. comm., 2002; J. Zakel, pers. comm., 2002). The lower portion of Limber Jim Creek provides FMO habitat up to a potentially impassable falls, and occupied spawning and rearing habitat occurs above the falls and in Marion Creek (ODFW, unpublished 2000; P. Boehne, pers. comm., 2002; J. Zakel, pers. comm., 2002). The lower portion of Clear Creek provides FMO habitat and spawning and rearing occurs in the upper portion and in the unnamed tributary (P. Boehne, pers. comm., 2002).

(vii) The Wallowa River from the confluence with the Grande Ronde River upstream for 66.6 km (41.4 mi) to the confluence of Hurricane Creek provides FMO habitat for sub-adult and adult fluvial bull trout, and is an essential migratory corridor for movement from upper watershed spawning streams to the Grande Ronde River. Fluvial fish that spawn in the Lostine, Deer, Minam, Bear, and upper Hurricane Rivers utilize the Wallowa River to move to and from foraging and overwintering habitat in the Grande Ronde and Snake Rivers (USFWS 2002).

(viii) Minam River from the confluence with the Wallowa River upstream 72.9 km (35.3 mi) and extending up the North Minam River for a distance of 2.1 km (1.3 mi), up Elk Creek for 2.6 km (1.6 mi), and up East Fork Elk Creek for 0.5 km (0.3 mi). The Minam River currently supports a bull trout local population with spawning and rearing occurring in each of the identified tributary streams and the upper 54 km (33 mi) of the Minam River (Buchanan *et al.* 1997; ODFW, unpublished 2000). Lower sections of the Minam River are utilized as FMO habitat; bull trout have been observed throughout the mainstem and migratory fluvial fish are present (P. Sankovich, ODFW, pers. comm., 2002).

(ix) Little Minam River from its confluence with the Minam River upstream 23.8 km (14.7 mi) and extending up Boulder Creek for 0.7 km (0.4 mi) and up Dobbin Creek for a distance of 5.1 km (3 mi) (P. Sankovich, ODFW, pers. comm., 6/11/02). A barrier falls occurs at approximately rkm 8.0 (rmi 5.0) of the Little Minam River, effectively preventing upstream movement of fish beyond that point. An isolated, resident bull trout local population exists above the barrier falls in portions of the Little Minam River, Boulder Creek, and Dobbin Creek (Buchanan *et al.* 1997). This resident population does not experience immigration of bull trout from other areas. The 8.0 km (5.0 mi) stretch of the Little Minam River below the barrier falls is proposed for designation because of the presence of bull trout in this reach, high water quality, and the potential importance that emigrants from the Little Minam local population area may provide to other downstream populations (P. Sankovich, ODFW, pers. comm., 6/11/02; USFWS 2002). All of the Little Minam River and its tributaries are within the Eagle Cap Wilderness Area.

(x) Deer Creek from the confluence with the Wallowa River upstream 25.8 km (16 mi) and extending up the tributary Sage Creek for a distance of 2.7 km (1.7 mi). Bull trout currently spawn in the upper 11 km (6.9 mi) of Deer Creek and have been observed at the mouth of Sage Creek (B. Knox, pers. comm., 2002). Sage Creek above the mouth is not known to be occupied, however, it is identified in the Draft Recovery Plan (USFWS 2002) as an area that may be essential to the long-term conservation of the species. Lower Deer Creek is FMO habitat; bull trout have been observed throughout the mainstem and fluvial fish are present. Deer Creek bull trout are considered to be part of the Minam River local population (USFWS 2002).

(xi) Bear Creek from its confluence with the Wallowa River upstream 33.6 km (20.9 mi) and extending up Little Bear Creek for a distance of 10.8 km (6.8 mi) and up Goat Creek for 1.7 km (1.1 mi). Bull trout spawn and rear in upper portions of Bear Creek, Little Bear Creek, and the identified reach of Goat Creek (B. Knox, pers. comm., 2002). Foraging and overwintering habitat is present in lower portions of Bear Creek and Little Bear Creek and fluvial bull trout have been observed in these reaches (USFWS 2002). Bull trout in the Bear Creek system are considered to be part of the Lostine River local population, so movement between these two drainages, via the Wallowa River, may be important to population viability. The lower portions of both Bear Creek and Little Bear Creek are essential to the long-term conservation of the species.

(xii) The Lostine River from its confluence with the Wallowa River upstream for 40.2 km (24.9 mi) to the mouth of the East Lostine River, and extending up Silver Creek 0.5 km (0.3 mi) to Hunter Falls and up Lake Creek for a distance of 1.2 km (0.7 mi). Bull trout spawn and rear in upper portions of the Lostine River, primarily upstream of Silver Creek, and in both Silver Creek and Lake Creek (Buchanan *et al.* 1997; B. Knox, pers. comm., 2002). The Lostine River downstream of Silver Creek is utilized as FMO habitat; fluvial bull trout have been observed in the lower Lostine River and are believed to travel down into the Wallowa and Grande Ronde Rivers, and potentially all the way down to the Snake River (P. Sankovich, ODFW, pers. comm. *in* USFWS 2002).

(xiii) Hurricane Creek from its confluence with the Wallowa River upstream 20.1 km (12.5 mi) to Slick Rock Creek. Hurricane Creek supports a distinct local population; bull trout spawn and rear in the upper 8 km (5 mi) of the identified reach and utilize the lower portion as FMO habitat (P. Sankovich, ODFW, pers. comm. *in* USFWS 2002).

(15) Unit 11: Imnaha/Snake River Basins

The Imnaha/Snake Unit extends across Wallowa, Baker, and Union counties in northeastern Oregon and Adams and Idaho counties in western Idaho. The unit contains approximately 306 km (190 mi) of proposed critical habitat and consists of two CHSUs: The Imnaha River basin and the Snake River basin from the Imnaha confluence upstream to Hells Canyon Dam. Seven bull trout local populations are identified in this unit, two in the Snake River CHSU (Sheep Creek and Granite Creek), and five in the Imnaha River CHSU: (1) Mainstem Imnaha; (2) Big Sheep Creek above the Wallowa Valley Irrigation Canal (WVIC); (3) Big Sheep Creek below the WVIC; (4) Little Sheep Creek; and (5) McCully Creek. The Draft Recovery Plan (USFWS 2002) identifies all seven existing local populations as necessary for recovery, and our proposed critical habitat reflects that need. Approximately 49 percent of the unit is located on private land and 51 percent is on Federal land.

(i) Snake River CHSU

(A) Sheep Creek from its confluence with the Snake River at rkm 370.0 (rmi 292.2) upstream 9.5 km (5.0 mi) to the confluence of the West and East forks of Sheep Creek. Fluvial bull trout are known to occur in this stream reach (Idaho Department of Environmental Quality 1998).

(B) Granite Creek from its confluence with the Snake River at rkm 386.6 (rmi 240.1) upstream approximately 10.9 km (6.8 mi) provides FMO habitat (Idaho Department of Environmental Quality 1998).

(ii) Imnaha River CHSU

(A) The Imnaha River from its confluence with the Snake River at rkm 309 (rmi 191.9) upstream approximately 115.3 km (71.6 mi) to the confluence of the North Fork Imnaha and South Fork Imnaha Rivers. Bull trout occur year-round upstream of approximately rkm 64.5 (rmi 40). In fall, winter, and spring fluvial bull trout utilize the Imnaha River below this approximate location for feeding, migration, and overwintering (Buchanan *et al.* 1997). The North Fork Imnaha River from the confluence of the North Fork and South Fork Imnaha upstream approximately 9.7 km (6 mi). This reach is used for spawning and rearing by resident bull trout. The Middle Fork Imnaha from the confluence of the Middle Fork with the North Fork upstream approximately 1.3 km (0.8 mi) to a barrier falls provides spawning and rearing habitat for resident bull trout. The South Fork Imnaha River from the confluence of the South Fork with the North Fork upstream approximately 9.2 km (5.7 mi). This reach is used for spawning and rearing by resident bull trout. Soldier Creek from the confluence with the South Fork Imnaha upstream approximately 0.4 km (0.3 mi). This reach is utilized for spawning, rearing, and foraging (Buchanan *et al.* 1997). Bear Creek from the confluence with the South Fork Imnaha upstream

approximately 0.4 km (0.3 mi). This reach is utilized for spawning, rearing, and foraging (Buchanan *et al.* 1997). Blue Creek from the confluence with the South Fork Imnaha upstream approximately 0.4 km (0.3 mi). This reach is utilized for spawning, rearing, and foraging (Buchanan *et al.* 1997). Cliff Creek from the confluence with the South Fork Imnaha upstream to the headwaters approximately 6.7 km (4.2 mi). This reach is also utilized for spawning, rearing, and foraging (Buchanan *et al.* 1997; Sausen *et al.* 2001).

(B) Big Sheep Creek from the confluence with the Imnaha River upstream approximately 62 km (38.4 mi) to the confluence with North Fork Big Sheep Creek and Middle Fork Big Sheep Creek; and Middle Fork big Sheep Creek form the confluence with Big Sheep Creek upstream 3.5 km (2.2 mi) to the headwaters near Bonny Lakes. Bull trout occur year-round from Owl Creek at approximately rkm 46.1 (rmi 28.6) and upstream. In fall, winter, and spring fluvial bull trout are present below this approximate location utilizing FMO habitat down to the confluence with the Imnaha River (Buchanan *et al.* 1997). Lick Creek from the confluence with Big Sheep Creek upstream approximately 15.1 km (9.4 mi) to the headwaters. This reach provides spawning, rearing, and foraging habitat (Buchanan *et al.* 1997; Sausen *et al.* 2001). Salt Creek from the confluence with Big Sheep Creek upstream approximately 1.9 km (1.2 mi) to the point where the stream goes sub-surface (downslope from the WVIC), and then continuing approximately 0.5 km (0.3 mi) above the intersection with the WVIC. These reaches provide spawning, rearing, and foraging habitat (Buchanan *et al.* 1997; Sausen *et al.* 2001).

(C) Little Sheep Creek from the confluence with Big Sheep Creek upstream approximately 41.7 km (25.9 mi) to where Little Sheep Creek is intercepted by the WVIC, and extending upstream from the WVIC approximately 0.9 km (0.6 mi). The reach of Little Sheep Creek below the WVIC is used as FMO habitat by fluvial bull trout during fall, winter, and spring. Spawning, rearing, and foraging occur upstream of the WVIC (Buchanan *et al.* 1997). Redmont Creek upstream 1.8 km (1.1 mi) from the confluence with Little Sheep Creek to approximately 0.5 km (0.3 mi) above the WVIC. These reaches are used for spawning, rearing, and foraging (Buchanan *et al.* 1997). Cabin Creek from the confluence with Little Sheep Creek upstream 0.4 km (0.25 mi). This reach is used for spawning and/or rearing (Buchanan *et al.* 1997).

(D) McCully Creek upstream from the WVIC approximately 10.8 km (6.7 mi) to the headwaters. This reach is used as spawning and rearing habitat (Buchanan *et al.* 1997).

(16) Unit 12: Hells Canyon Complex

The Hells Canyon Complex Unit encompasses basins in Idaho and Oregon draining into the Snake River and its associated reservoirs, from Hells Canyon Dam upstream to the confluence of the Weiser River. It includes the Indian Creek and Wildhorse River basins in west-central Idaho and the Pine Creek, Powder River, and Burnt River basins in northeastern Oregon.

The Hells Canyon Complex unit includes a total of approximately 1,000 km (621 mi) of stream proposed as critical habitat and contains two CHSUs: the Pine-Indian-Wildhorse CHSU and the Powder River CHSU. The Pine-Indian-Wildhorse CHSU is located within Adams and Washington counties in western Idaho, and Baker and Wallowa counties in northeastern Oregon. A total of 390 km (242 mi) of streams within this CHSU are proposed for critical habitat designation. This CHSU contains seven known local populations of bull trout and two potential local populations. Approximate percentages of landownership associated with the streams proposed for designation are 65 percent Federal, 35 percent private, and less than 1 percent State of Idaho. The Powder River CHSU is located within Baker, Union, and Wallowa counties in northeastern Oregon. A total of approximately 610 km (379 mi) of streams within the Powder River CHSU are proposed for critical habitat designation. This CHSU contains 10 known local populations of bull trout and one potential local population. Approximate percentages of landownership associated with the streams proposed for designation are 64 percent private, 36 percent Federal, and less than 1 percent State of Oregon. The stream segments that make up the Hells Canyon Complex Unit are described below.

(i) Pine-Indian-Wildhorse CHSU

(A) Pine Creek from the confluence with the west bank of Hells Canyon Reservoir on the Snake River (rkm 434 (rmi 269.5)) upstream approximately 52.7 km (32.7 mi) to the joint confluence of West Fork Pine Creek and Middle Fork Pine Creek. Pine Creek provides FMO habitat in the lower reaches, as well as spawning and rearing habitat in the headwaters. North Pine Creek from the confluence with Pine Creek upstream approximately 22.3 km (13.8 mi) to the Baker and Wallowa counties boundary. North Pine Creek is currently occupied FMO habitat from the confluence with Pine Creek upstream to the confluence with Elk Creek. East Fork Pine Creek from the confluence with Pine Creek upstream approximately 7.2 km (4.5 mi) to the perennial headwaters. West Fork Pine Creek from the confluence with Pine Creek upstream approximately 3.8 km (2.4 mi) to the perennial headwaters. Middle Fork Pine Creek from the confluence with Pine Creek upstream approximately 3.7 km (2.3 mi) to the perennial headwaters. These creeks are essential for maintaining the upper Pine Creek local population, maintaining connectivity among all local populations within the Pine Creek Basin, and also maintaining connectivity to Hells Canyon Reservoir on the Snake River (USFWS 2002). The upper reach of North Pine Creek is also FMO habitat to provide connectivity essential to the long-term conservation of bull trout. (USFWS 2002).

(B) Elk Creek from the confluence with North Pine Creek upstream approximately 15.2 km (9.4 mi) to the perennial headwaters. Elk Creek provides spawning and rearing habitat for the Elk Creek local population, as well as FMO habitat for migratory bull trout from Hells Canyon Reservoir and the Indian Creek (Idaho) local population. Little Elk Creek from the confluence with North Pine Creek upstream approximately 9.9 km (6.2 mi) to the perennial headwaters. Fall Creek from the confluence with North Pine Creek upstream approximately 7.1 km (4.4 mi) to the perennial headwaters. These tributaries provide spawning, rearing, and/or foraging habitat for expansion of existing (Elk Creek) and potential (Lake Fork and Duck Creek) local populations associated with North Pine Creek. Habitat for expansion of distribution within existing local populations and establishment of potential local populations is essential for the long-term conservation of bull trout (USFWS 2002). Aspen Creek from the confluence with Elk Creek upstream approximately 2.5 km (1.6 mi) to the perennial headwaters. Cabin Creek from the confluence with Elk Creek upstream approximately 2 km (1.2 mi) to the perennial headwaters. Big Elk Creek from the confluence with Elk Creek upstream approximately 3.3 km (2.1 mi) to the perennial headwaters. Cabin, Big Elk, and Aspen creeks provide spawning and rearing habitat for the Elk Creek local population.

(C) Lake Fork Creek (also termed Lake Fork of Elk Creek or Lake Creek) from

the confluence with Elk Creek upstream approximately 16.7 km (10.4 mi) to the perennial headwaters. Lake Fork Creek is habitat for establishing a local population of bull trout that is essential for the long-term conservation of the species (USFWS 2002).

(D) Duck Creek from the confluence with North Pine Creek upstream approximately 9.7 km (6 mi) to the perennial headwaters. Duck Creek is habitat for establishing a local population of bull trout essential for the long-term conservation of the species (USFWS 2002). Fish Creek from the confluence with Pine Creek upstream approximately 20.5 km (12.8 mi) to the perennial headwaters. This stream is historical habitat for bull trout and may provide spawning, rearing, and/or foraging habitat for expansion of existing (Elk Creek) and potential (Lake Fork and Duck Creek) local populations associated with North Pine Creek. Expansion of distribution within local populations is essential for the long-term conservation of bull trout.(USFWS 2002)

(E) East Pine Creek from the confluence with Pine Creek upstream approximately 30.1 km (18.7 mi) to the perennial headwaters. Lower East Pine Creek provides FMO habitat necessary to maintain connectivity among local populations within the Pine Creek Basin. Spawning and rearing habitat for the East Pine Creek local population occurs in the headwaters. Okanogan Creek from the confluence with East Pine Creek upstream approximately 4 km (2.5 mi) to the perennial headwaters. Trinity Creek from the confluence with East Pine Creek upstream approximately 4.8 km (3 mi) to the perennial headwaters. These creeks are historical habitat for bull trout and provide spawning and rearing habitat for expansion of existing local populations. Habitat for expansion of distribution within local populations is essential for the long-term conservation of bull trout (USFWS 2002). An unnamed western tributary to East Pine Creek (located between Trinity Creek and East Fork of East Pine Creek) from the confluence with East Pine Creek upstream approximately 2.5 km (1.6 mi) to the perennial headwaters. East Fork of East Pine Creek from the confluence with East Pine Creek upstream approximately 2.5 km (1.6 mi) to the perennial headwaters. The unnamed tributary and the East Fork of East Pine Creek provide spawning and rearing habitat for the East Pine Creek local population.

(F) Clear Creek from the confluence with Pine Creek upstream approximately 26.1 km (16.2 mi) to the perennial headwaters. Meadow Creek from the confluence with Clear Creek upstream approximately 5.3 km (3.3 mi) to the perennial headwaters. Trail Creek from the confluence with Clear Creek upstream approximately 6.8 km (4.2 mi) to the perennial headwaters. These creeks provide spawning and rearing habitat for the Clear Creek local population. Lower Clear Creek also provides FMO habitat necessary to maintain connectivity among local populations within the Pine Creek Basin.

(G) Indian Creek from the confluence with the east bank of the Snake River within the Oxbow Bypass (rkm 436.0 (rmi 270.8)) upstream approximately 29.6 km (18.4 mi) to the perennial headwaters. Camp Creek from the confluence with Indian Creek upstream approximately 3.7 km (2.3 mi) to the perennial headwaters. Indian Creek supports both resident and migratory bull trout. Lower Indian Creek provides FMO habitat to maintain connectivity with Hells Canyon Reservoir; spawning and rearing habitat is present in the headwaters of Indian Creek and Camp Creek for the Indian Creek (Idaho) local population.

(H) Bear Creek from the confluence with the Crooked River at the head of the Wildhorse River upstream approximately 30 km (18.6 mi) to the perennial headwaters. Bear Creek provides spawning and rearing habitat for the Bear Creek local population, one of only two local populations of bull trout in the Wildhorse River Basin. Lick Creek from the confluence with Bear Creek upstream approximately 21.8 km (13.6 mi) to the perennial headwaters. Current occupancy is unknown, but Lick Creek provides habitat for expansion of distribution of the Bear Creek local population; such expansion is essential for the long-term conservation of the species (USFWS 2002). Wildhorse River from the confluence with the east bank of Oxbow Reservoir on the Snake River (rkm 455 (rmi 282.6)) upstream approximately 22.4 km (13.9 mi) to the joint confluence of Bear Creek and the Crooked River. The extent of current occupancy is unknown, but bull trout have recently used the Wildhorse River as migratory habitat. The Wildhorse River provides FMO habitat and connectivity between two local populations (Bear Creek and Crooked River), which is essential to the long-term conservation of the species (USFWS 2002).

(I) Crooked River from the confluence with Bear Creek at the head of the Wildhorse River upstream approximately 23.7 km (14.7 mi) to the perennial headwaters. The Crooked River is habitat for one of only two local populations of bull trout in the Wildhorse River Basin and is essential for the long-term conservation of the species.

(ii) Powder River CHSU

(A) The Powder River from confluence with the west bank of Brownlee Reservoir on the Snake River upstream approximately 235 km (146 mi) to the joint confluence of the McCully Fork and Cracker Creek. There are historical (1960s) observations of bull trout in the Powder River downstream of Baker City, Oregon, and upstream of Mason Dam (Buchanan *et al.* 1997) but the extent of current occupancy is unknown. Bull trout can utilize Phillips Reservoir above Mason Dam for FMO habitat in the fall, winter, and spring. The mainstem Powder River will provide FMO habitat when two-way fish passage at Thief Valley and Mason dams is restored, and habitat for connectivity among local populations in the upper Powder and North Powder rivers and Eagle Creek is essential for the long-term conservation of the species (USFWS 2002).

(B) Eagle Creek from the confluence with the Powder River Arm of Brownlee Reservoir on the Snake River upstream approximately 61 km (37.9 mi) to the perennial headwaters. East Fork Eagle Creek from the confluence with Eagle Creek upstream approximately 24.2 km (15 mi) to the perennial headwaters. West Eagle Creek from the confluence with Eagle Creek upstream approximately 15.1 km (9.4 mi) to the perennial headwaters. These creeks are historical habitat for bull trout, but the extent of current occupancy is unknown. Reestablishing a local population in the Eagle Creek watershed is essential for the conservation of bull trout (USFWS 2002).

(C) Wolf Creek from the confluence with the Powder River upstream approximately 31.6 km (19.6 mi) to the perennial headwaters. Wolf Creek provides spawning and rearing habitat for the Wolf Creek local population. When two-way fish passage at Wolf Creek Dam is restored, lower Wolf Creek will provide FMO habitat and connectivity with other local populations in the Powder River Basin, and habitat for such connectivity is essential for the conservation of bull trout (USFWS 2002).

(D) North Powder River from the confluence with the Powder River upstream approximately 75.0 km (46.6 mi) to the perennial headwaters. The North Powder River provides spawning and rearing habitat for the North Powder River local population. The lower North Powder River downstream of the

confluence with Anthony Creek likely provides FMO habitat and is essential for connectivity among local populations in the Powder River Basin (USFWS 2002).

(E) Anthony Creek from the confluence with the North Powder River upstream approximately 25.8 km (16 mi) to a barrier waterfall located approximately 10 km (6.2 mi) upstream from the confluence with Indian Creek (Oregon). Anthony Creek provides spawning and/or rearing habitat for the Anthony Creek local population, identified as essential for recovery (USFWS 2002). North Fork Anthony Creek from the confluence with Anthony Creek upstream approximately 8.5 km (5.3 mi) to the perennial headwaters. North Fork Anthony Creek provides spawning and/or rearing habitat for the Anthony Creek local population.

(F) Indian Creek from the confluence with Anthony Creek upstream approximately 8.4 km (5.2 mi) to the perennial headwaters. Indian Creek provides rearing habitat for the Indian Creek local population identified as essential for recovery (USFWS 2002).

(G) Big Muddy Creek from the confluence with the Powder River upstream approximately 17.3 km (10.7 mi) to the perennial headwaters. Big Muddy Creek provides spawning and rearing habitat for the Big Muddy Creek local population of bull trout, which is essential for recovery (USFWS 2002).

(H) Rock Creek from the confluence with the Powder River upstream approximately 20.2 km (12.6 mi) to the perennial headwaters. Rock Creek provides spawning and rearing habitat for the Rock Creek local population (USFWS 2002).

(I) Salmon Creek from the confluence with the Powder River upstream approximately 19.6 km (2.2 mi) to the perennial headwaters. Salmon Creek provides spawning and rearing habitat for the essential Salmon Creek local population.

(J) Pine Creek from the confluence with Salmon Creek upstream approximately 16.9 km (10.5 mi) to Pine Creek Dam. Pine Creek provides spawning and rearing habitat for the Pine Creek local population, which is essential for recovery (USFWS 2002).

(K) Lake Creek from the confluence with Deer Creek upstream to the perennial headwaters. Lake Creek provides spawning and rearing habitat for the Lake Creek local population, which is essential for recovery (USFWS 2002). Deer Creek from the confluence with the north bank of Phillips Reservoir on the Powder River upstream approximately 9.2 km (5.7 mi) to the confluence with Lake Creek. Current occupancy is unknown, but Deer Creek is essential to provide FMO habitat for the Lake Creek local population and connectivity with other bull trout populations in the Powder River Basin (USFWS 2002).

(L) Cracker Creek from the confluence with the McCully Fork at the head of the Powder River upstream approximately 13.6 km (8.4 mi) to the perennial headwaters. Cracker Creek provides connectivity for bull trout in two tributaries (Silver and Little Cracker creeks) within the upper Powder River local population, and with other local populations within the Powder River Basin via lower Cracker Creek. Silver Creek from the confluence with Cracker Creek upstream approximately 9.8 km (6.1 mi) to the perennial headwaters. Silver Creek provides spawning and rearing habitat for the upper Powder River local population. Fruit Creek from the confluence with Silver Creek upstream approximately 7.3 km (4.5 mi) to the perennial headwaters. Fruit Creek is historical bull trout habitat, but current occupancy is unknown. Passage barriers in Fruit Creek are identified as recovery tasks in the Draft Recovery Plan (USFWS 2002), which will allow for potential natural expansion of distribution within the upper Powder River local population. Fruit Creek is also being considered as a site for transplanting bull trout to help provide for the long-term conservation of the species. Little Cracker Creek from the confluence with Cracker Creek upstream approximately 3.1 km (1.9 mi) to the perennial headwaters. Little Cracker Creek currently provides bull trout rearing habitat for the upper Powder River local population.

(17) Unit 13: Malheur River Basin

The Malheur Unit is in the Malheur River Basin in eastern Oregon in Grant, Baker, Harney, and Malheur counties. A total of 389 km (241 mi) of streams and two reservoirs are proposed for critical habitat. Landownership along the waterways proposed for critical habitat are approximately 63 percent Federal land, 3 percent State land, and 34 percent private land. There are two local bull trout populations (upper Malheur (a) and North Fork Malheur (b)), and four potential local populations (Bosonberg Creek, McCoy Creek, Corral Basin Creek, and the Little Malheur River) that are identified as essential to recovery in the Draft Recovery Plan (USFWS 2002).

(i) Malheur River upstream 95.6 km (59.4 mi) from Warm Springs Dam, including Warm Springs Reservoir (1,658 ha; 4,098 ac), to the confluence with Big Creek at rkm 229 in Logan Valley provides FMO habitat for bull trout which migrate downstream from spawning and rearing habitat in the Logan Valley area (USFWS 2002).

(ii) The North Fork Malheur River from Agency Valley Dam upstream 36.5 km (22.7 mi) to the headwaters, including Beulah Reservoir (712 ha; 1,759 ac), provides FMO habitat below rkm 69 and spawning and rearing habitat above that point (Burns Paiute Tribe 1998–2000). Sheep Creek from the confluence with North Fork Malheur River at rkm 83.2 upstream 6.7 km (4.2 mi) to its source provides spawning and rearing habitat (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000). Cow Creek from the confluence with North Fork Malheur River upstream 5.7 km (3.5 mi) to its source provides rearing habitat. Swamp Creek from the confluence with North Fork Malheur River at rkm 84.4 upstream 8.1 km (5.0 mi) to its source contains spawning and rearing habitat (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000). Flat Creek from its confluence with North Fork Malheur River at rkm 86.0 upstream to rkm 1.2 at the first tributary confluence provides FMO habitat (Buchanan *et al.* 1997). Horseshoe Creek from the confluence with the North Fork Malheur River at rkm 88.4 upstream 4.5 km (2.8 mi) to its source contains spawning and rearing habitat (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000).

(iii) The Little Malheur River from its confluence with the North Fork Malheur River upstream 31.2 km (19.4 mi) to Camp Creek provides potential FMO habitat in the lower reaches and potential spawning and rearing habitat in the upper reaches. Crane Creek from its confluence with the North Fork Malheur River at rkm 69.5 upstream 1.8 km (1.1 mi) to the confluence with Little Crane Creek contains suitable migratory and rearing habitat (Burns Paiute Tribe 1998, 1999). Little Crane Creek from the confluence with Crane Creek upstream 15.2 km (9.4 mi) to its spring fed sources provides suitable spawning and rearing habitat (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000). An unnamed stream at rkm 9.6 of Little Crane Creek also provides suitable spawning and rearing habitat from the confluence upstream 2.6 km (1.6 mi) to its headwaters (A. Mauer, USFWS, pers. comm., 2002). Elk Creek from the confluence with the North Fork Malheur River at rkm 79.3 upstream 1.6 km (1.0 mi) to its confluence with the North Fork and South Fork Elk Creek, South Fork Elk

Creek from the confluence with Elk Creek upstream 5.9 km (3.7 mi) to its source, and North Fork Elk Creek from the confluence with Elk Creek upstream 7.7 km (4.8 mi) to its source provide spawning and rearing habitat (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000). The Little Malheur River is essential to providing for the recovered distribution of bull trout (USFWS 2002).

(iv) Summit Creek from the confluence with the Malheur River at rkm 292.0 upstream 22.8 km (14.2 mi) to its source; Big Creek from the confluence with the Malheur River at rkm 299.0 upstream 19.0 km (11.8 mi) to its source; Meadow Fork Big Creek from the confluence with Big Creek at rkm 9.8 upstream 6.7 km (4.2 mi) to its source; Snowshoe Creek from the confluence with Big Creek at rkm 11.7 upstream 3.4 km (2.1 mi) to its source; Lake Creek from the confluence with the Malheur River at rkm 299.0 upstream 20.3 km (12.6 mi) to its source; and Crooked Creek from the confluence with Lake Creek at rkm 1.2 upstream 13.5 km (8.4 mi) to its source provide spawning and rearing habitat for the upper Malheur River local population (Buchanan *et al.* 1997; Perkins, unpublished 1996–2001; Burns Paiute Tribe 1998–2000).

(v) McCoy Creek from the confluence with Lake Creek at rkm 4.0 upstream 14.6 km (9.1 mi) to its source contains potential spawning and rearing habitat. McCoy Creek is identified as an area for range expansion in the Draft Recovery Plan, and is essential for the long-term conservation of the species (USFWS 2002).

(vi) Bosonberg Creek from the confluence with the Malheur River at rkm 298.0 upstream 5.8 km (3.6 mi) to its source contains potential habitat for bull trout. Restoration of the habitat in Bosonberg Creek to provide for population expansion is essential to the long-term conservation of the species (USFWS 2002).

(vii) Corral Basin Creek from the confluence with Big Creek at rkm 8.3 (rmi 5.2) upstream to its source is historic habitat necessary to provide for population expansion that is essential to the conservation of the species (USFWS 2002).

(18) Unit 14: Coeur d'Alene Lake Basin

(i) Coeur d'Alene Lake CHSU

The Coeur d'Alene Lake CHSU lies within Kootenai, Shoshone, Benewah and Bonner counties, Idaho. Landownership along stream proposed as critical habitat for bull trout include approximately 63 percent Federal, 30 percent private, and 6 percent State. The stream reaches proposed as designated critical habitat were identified by the Coeur d'Alene Lake Basin Recovery Unit Team as the best of the best remaining suitable habitats within a matrix of habitats generally considered unsuitable for support of spawning and rearing bull trout (USFS, unpublished 1994, 1998a, 1998b). The areas proposed as critical habitat all presently contain multiple primary constituent elements and reflect habitat essential to support populations of bull trout identified as necessary for the long-term conservation of bull trout (USFWS 2002). In total, there are approximately 6,903 km (4,290 mi) of streams comprising 502 named streams in the Coeur d'Alene Lake basin. Of this, 30 stream reaches or tributaries comprising 677 km (421 mi) are proposed as critical habitat. This equals approximately 6 percent of all streams and less than 10 percent of total stream length in the basin. Lakes comprising 12,727 ha (31,450 ac) of surface area are also being proposed as critical habitat.

(A) Coeur d'Alene Lake, approximately 12,727 ha (31,450 ac) in size, provides FMO habitat for the almost entirely migratory (adfluvial and fluvial) forms present in this CHSU.

(B) Coeur d'Alene River from the mouth upstream 59.4 km (36.9 mi) to the confluence of the North Fork and South Fork of the Coeur d'Alene River provides FMO habitat necessary for the conservation of the species (USFWS 2002). Any adfluvial bull trout that either currently exist, or those local populations of bull trout to be reestablished in the future in portions of the North Fork Coeur d'Alene River, would migrate through this section of river. North Fork Coeur d'Alene River, from its confluence with the South Fork Coeur d'Alene River upstream 140.2 km (87.1 mi) to the headwaters, is FMO habitat necessary for the long-term conservation of the species. (**Note:** we found discrepancies between USGS, STREAMNET, and other maps for this area, and specifically for the designation of the North Fork Coeur d'Alene River; we relied on the Idaho Panhandle National Forest, Fernan and Wallace Ranger District maps.)

(C) Cougar Creek from the confluence with the North Fork Coeur d'Alene River upstream 15.3 km (9.5 mi) provides spawning and rearing habitat to provide for the recovered distribution of bull trout (USFWS 2002). This portion of Cougar Creek has been identified as a priority stream for restoration and recovery activities as it has been determined to provide habitat elements necessary for long term security, or have a reasonable potential to be restored and provide elements for long-term security of bull trout in the near future. This watershed maintains good populations of westslope cutthroat trout, as well as sculpin species, indicative of potential bull trout habitat (USFS 1992, 1998a; E. Lider, USFS, pers. comm., 2002).

(D) Steamboat Creek (including the East and West Forks) from the confluence with the North Fork Coeur d'Alene River upstream 25.4 km (15.8 mi) to the headwaters provides spawning and rearing habitat essential for the conservation of the species. This portion of Steamboat Creek has been identified as a priority stream for restoration and recovery activities (USFWS 2002) as it has been determined to provide habitat elements necessary for long term security or have a reasonable potential to be restored and provide elements for long-term security of bull trout in the near future. This area maintains good populations of westslope cutthroat trout (*Oncorhynchus clarki*), as well as sculpin (*Cottus sp.*) species, indicative of potentially suitable bull trout habitat (USFS 1992, 1998a).

(E) Prichard Creek from the confluence with the North Fork Coeur d'Alene River upstream 4.7 km (2.9 mi) to the confluence with Eagle Creek contains FMO habitat. This reach is considered a priority water body for restoration and recovery activities as it is essential as a migratory corridor for adfluvial bull trout, and to maintain connectivity between all local populations within Coeur d'Alene Lake basin to provide for conservation of the species (USFWS 2002).

(F) Eagle Creek from the confluence with Prichard Creek upstream 1.6 km (1.0 mi) to the confluence with the West Fork Eagle Creek provides FMO habitat. This portion of Eagle Creek has been identified as a priority water body for restoration and recovery activities as it is essential as a migratory corridor for adfluvial bull trout, and to maintain connectivity between all local populations within Coeur d'Alene Lake basin (USFWS 2002). Any adfluvial bull trout that would utilize the West Fork Eagle Creek for spawning and rearing would have to migrate through this short section of Eagle Creek. West Fork Eagle Creek from the confluence with Eagle Creek upstream 15.0 km (9.3 mi) to the headwaters provides spawning and rearing habitat. This portion of the West Fork Eagle Creek has been identified as a priority stream for restoration and recovery activities as it has been determined to provide habitat elements necessary for long term

security, or have a reasonable potential to be restored and provide elements for long-term security of bull trout in the near future (USFWS 2002). In order to meet the recovery criteria of reestablishing at least 300 spawners within the North Fork Coeur d'Alene recovery CHSU, previously occupied and currently suitable habitat in the West Fork of Eagle Creek needs to be maintained, and if possible, enhanced, to provide additional areas of spawning and rearing essential to the conservation of the species.

(G) Tepee Creek from the confluence with the North Fork Coeur d'Alene River upstream 14.2 km (8.8 mi) to the confluence with Trail Creek contains FMO habitat. This portion of Tepee Creek, and the associated tributaries discussed below, have been identified as priority water bodies for restoration activities necessary as migratory corridors for adfluvial bull trout, to maintain connectivity between all local populations within Coeur d'Alene Lake basin, and to provide spawning and rearing habitat, all of which are essential to the conservation of the species (USFWS 2002). Tepee Creek has a variety of stream habitat types (size, flow, complexity) that appear to provide fish with diverse habitat that will allow for long term persistence within the watershed. Previous habitat restoration activities have created larger and deeper pools and runs in several reaches of this stream (E. Lider, USFS, pers. comm., 2002). Independence Creek from the confluence with Tepee Creek upstream 25.0 km (15.5 mi) to the headwaters provides FMO habitat in the lower reaches, and spawning and rearing habitat in the upper reaches. This watershed is especially valuable within the Coeur d'Alene River basin to provide refugia essential to the conservation of bull trout (USFS 1998a). Trail Creek from the confluence with Tepee Creek upstream 10.0 km (6.2 mi) to the headwaters contains spawning and rearing habitat. In order to meet the recovery criteria of reestablishing at least 300 spawners within the North Fork Coeur d'Alene CHSU essential to the conservation of the species, previously occupied and currently suitable habitat such as that in Trail Creek needs to be maintained, and if possible, enhanced to provide additional areas of spawning and rearing.

(H) Buckskin Creek from the confluence with the North Fork Coeur d'Alene River upstream 6.9 km (4.3 mi) to the headwaters provides spawning and rearing habitat. This portion of Buckskin Creek has been identified as a priority stream for restoration and recovery activities as it has been determined to provide habitat elements necessary for long term security, or have a reasonable potential to be restored and provide elements for conservation of bull trout in the near future (USFWS 2002). Forage base for bull trout is abundant as the population of westslope cutthroat trout in Buckskin Creek is very healthy, and had some of the highest densities relative to over 70 other streams that were surveyed in 1994 and 1995 throughout the Coeur d'Alene River basin (Dunnigan 1997). Stream habitat in Buckskin Creek is very good as very little management has occurred within the watershed (E. Lider, USFS, pers. comm., 2002).

(ii) St. Joe River CHSU

The St. Joe River CHSU includes an estimated 3,574 km (2,221 mi) of streams encompassing over 254 named tributaries (Streamnet 2002) in Shoshone, Benewah, and Latah counties, Idaho. The high elevation and cold water temperatures inherent to this area results in natural conditions that favor bull trout persistence (PBTTAT 1998c). In addition, the processes within the upper portion of this CHSU have been minimally altered by human management actions. Landownership adjacent to aquatic areas proposed as critical habitat for bull trout include approximately 52 percent Federal, 41 percent private, and 7 percent State lands.

The Coeur d'Alene Lake Basin Recovery Unit Team established recovery criteria of reestablishing at least eight local populations in the St. Joe River CHSU with an average of 100 spawners annually per local population. The streams identified below either currently provide habitat elements necessary for long term security, or have a reasonable potential to be restored and provide elements for long-term security of bull trout in the near future. Proposed critical habitat reflects those areas necessary to support populations of bull trout identified as necessary to provide for the long-term conservation of bull trout in the Draft Recovery Plan (USFWS 2002).

(A) The lower St. Joe River from the confluence with Coeur d'Alene Lake upstream 156.4 km (97.2 mi) to the confluence with Simmons Creek provides FMO habitat. Mainstem channel habitat conditions are essential to the long term viability of bull trout due to the over-wintering habits of these migratory fish. Adult migratory bull trout from Coeur d'Alene Lake travel upstream through these lower mainstem reaches in the spring and early summer to natal streams, where they typically spawn during the first few weeks of September (Idaho Department of Fish and Game (IDFG), unpublished 1999), and then return downstream. Upper St. Joe River from the confluence of Simmons Creek upstream 71.8 km (44.6 mi) to Rambikur Falls (just below St. Joe Lake) provides spawning, rearing, and FMO habitat. This portion of upper St. Joe River, and the associated streams described below, has been identified as a priority area for restoration and recovery activities (USFWS 2002). Bull trout are currently known to spawn and rear within this portion of the St. Joe River basin.

(B) Eagle Creek from the confluence with the St. Joe River upstream 10.6 km (6.6 mi) to the headwaters provides, at a minimum, foraging habitat. Additionally, Eagle Creek and the associated streams described below have been identified as priority streams for restoration and recovery activities (USFWS 2002) with many of the habitat characteristics that are essential to the conservation of bull trout (USFS 1998b). Mosquito Creek from the confluence with the St. Joe River upstream 2.1 km (1.3 mi) to a barrier falls provides spawning and rearing habitat. This portion of Mosquito Creek has been identified as a priority stream for restoration and recovery activities and is essential to the conservation of bull trout (USFWS 2002). Gold Creek from the confluence with the St. Joe River upstream 15.4 km (9.6 mi) to the headwaters provides spawning and rearing habitat. Simmons Creek from the confluence with the St. Joe River upstream 18.7 km (11.6) mi to the headwaters contains spawning and rearing habitat.

(C) Fly Creek from the confluence with the St. Joe River upstream 9.8 km (6.1 mi) to its headwaters at Twin Lakes contains spawning and rearing habitat. Beaver Creek from the confluence with the St. Joe River upstream 10.6 km (6.6 mi) to its headwaters contains spawning and rearing habitat. Red Ives Creek from the confluence with the St. Joe River upstream 9.2 km (5.7 mi) to the headwaters provides spawning and rearing habitat. Adult bull trout implanted with radio transmitters have been tracked into Red Ives Creek, presumably to spawn. Surveys have documented bull trout of various age classes as well as redds in this stream (USFS 1993).

(D) Timber Creek from the confluence with the St. Joe River upstream 8.5 km (5.3 mi) to the headwaters contains spawning and rearing habitat. Surveys have documented spawning and bull trout of various age classes in this stream. Ruby Creek from the confluence

with the St. Joe River upstream 6.8 km (4.2 mi) to the headwaters contains documented spawning and rearing habitat. Bean Creek from the confluence with the St. Joe River upstream 7.2 km (4.5 mi) to the headwaters contains documented spawning and rearing habitat.

(E) Heller Creek from the confluence with the St. Joe River upstream 6.0 km (3.7 mi) to the headwaters provides documented spawning and rearing habitat. Sherlock Creek from the confluence with Heller Creek upstream 7.4 km (4.6 mi) to the headwaters provides spawning and rearing habitat. Yankee Bar Creek from the confluence with the St. Joe River upstream 3.2 km (2.0 mi) to the headwaters contains spawning and rearing habitat.

(F) California Creek from the confluence with the St. Joe River upstream 4.7 km (2.9 mi) to the headwaters contains spawning and rearing habitat. Medicine Creek from the confluence with the St. Joe River upstream 4.7 km (2.9 mi) to the headwaters provides habitat where bull trout are known to spawn. Wisdom Creek from the confluence with the St. Joe River upstream 6.1 km (3.8 mi) to the headwaters provides habitat where bull trout are currently known to spawn and rear. A steep cascade, which was believed to form a barrier to migratory fish, occurs at approximately rkm 4.0 (rmi 2.2). However, during redd surveys in 2001, multiple redds and bull trout were documented above the cascade (J. Dupont, IDFG, pers. comm., 2002).

(19) Unit 15: Clearwater River Basin

The Clearwater River Unit includes 3,063 km (1,904 mi) of streams and 6,722 ha (16,611 ac) of lakes proposed to be designated as critical habitat for bull trout within the Clearwater River basin in north-central Idaho. This large basin covers an area of approximately 2,423,691 ha (5,989,052 ac) and extends from the Snake River confluence at Lewiston on the west to headwaters in the Bitterroot Mountains along the Idaho/Montana border on the east. This unit is divided into seven CHSUs. These CHSUs include: Lower/Middle Fork Clearwater River, North Fork Clearwater River, Fish Lake (North Fork), South Fork Clearwater River, Lochsa River, Fish Lake (Lochsa), and Selway River. Habitat areas to support all local populations within this unit are essential to the conservation of bull trout (USFWS 2002).

(i) Lower/Middle Fork Clearwater River CHSU

The Lower/Middle Fork Clearwater River CHSU lies within a drainage basin of approximately 660,012 ha (1,630,919 ac) that includes the mainstem and Middle Fork of the Clearwater River, plus all watersheds tributary to these large channels except for the North Fork Clearwater above Dworshak Dam and the South Fork Clearwater, Lochsa and Selway drainages. Located within Idaho's Nez Perce, Latah, Lewis, Clearwater, and Idaho counties, the basin has a diverse mix of private (76 percent), Federal (14 percent), State (8 percent), and Nez Perce Tribal (2 percent) ownership. The Lower/Middle Fork Clearwater River CHSU includes 293.7 km (182.6 mi) of streams proposed to be designated as critical habitat.

(A) The Clearwater River from its confluence with the Snake River upstream 119.5 km (74.3 mi) to the confluence with the South Fork Clearwater River, the Middle Fork Clearwater River from the confluence with the South Fork upstream 36.8 km (22.9 mi) to its origin at the confluence of the Lochsa River and Selway River, provide FMO habitat (Clearwater Basin Bull Trout Technical Advisory Team (CBBTTAT) 1998a,b). They also provide functional migratory corridors that may allow fluvial bull trout to move between local populations within and outside this CHSU. The North Fork Clearwater River from its confluence with the Clearwater River upstream 2.6 km (1.6 mi) to the base of Dworshak Dam provides important thermal refuge during summer.

(B) Lolo Creek from its confluence with the Clearwater River upstream 72.9 km (45.3 mi) to the headwaters provides rearing and migratory habitat (CBBTTAT 1998a; USFS 1999a).

(C) Clear Creek from its confluence with the Middle Fork Clearwater River upstream 34.7 km (21.5 mi) to the headwaters is occupied habitat (CBBTTAT 1998d), Middle Fork Clear Creek from its mouth upstream 10.8 km (6.7 mi) to the headwaters, and South Fork Clear Creek from its mouth upstream 15.9 km (9.9 mi) to the headwaters are areas where occupancy is unknown. These areas are essential to maintaining the existing bull trout distribution, and to expand habitat as essential for the conservation of bull trout (USFWS 2002).

(ii) North Fork Clearwater River CHSU

The North Fork Clearwater River CHSU lies within a drainage basin of approximately 632,348 ha (1,562,561 ac) that includes the entire North Fork Clearwater River system above Dworshak Dam, excluding the small portion of the Lake Creek drainage upstream of Japanese Creek. Located within Clearwater, Idaho, and Shoshone counties, the basin landownership is a mixture of Federal (67 percent), State (12 percent), and private (21.0 percent). The areas proposed for designation as critical habitat in this CHSU include a total of 918.9 km (571.1 mi) of streams, and the full 6,656 ha (16,441 ac) pool of Dworshak Reservoir.

(A) Dworshak Reservoir (6,656 ha (16,441 ac)), the North Fork Clearwater River from the head of the reservoir upstream 164.8 km (102.4 mi) to Kelly Forks, Freeman Creek from the confluence with Dworshak Reservoir upstream 2.5 km (1.6 mi) to an unnamed tributary, Breakfast Creek from its confluence with Little North Fork Clearwater River upstream 6.1 km (3.8 mi) to the mouth of Stony Creek, and Stony Creek from its mouth upstream 5.9 km (3.7 mi) to the mouth of Glover Creek provide FMO habitat for upstream bull trout populations. Floodwood Creek from its confluence with Breakfast Creek upstream 21.8 km (13.6 mi) to an unnamed tributary provides FMO habitat (D. Schiff, IDFG, pers. comm., 2002), and West Fork Floodwood Creek from its mouth upstream 6.7 km (4.2 mi) to an unnamed tributary provides rearing habitat (CBBTTAT 1998c).

(B) The Little North Fork Clearwater River from Dworshak Reservoir upstream 72.5 km (45.1 mi) to a gradient break near the headwaters provides FMO and rearing habitat (CBBTTAT 1998c). Sawtooth Creek from its confluence with the Little North Fork Clearwater River upstream 13.4 km (8.3 mi) to an unnamed tributary is historic habitat (USFS 1935) and is adjacent to habitat known to be occupied, and provides habitat necessary for the recovered distribution of bull trout (Skille 1991; USFWS 2002). Canyon Creek from its confluence with the Little North Fork Clearwater River upstream 15.5 km (9.7 mi) to an unnamed tributary is occupied habitat (D. Schiff, IDFG, pers. comm., 2002). Montana Creek from its confluence with the Little North Fork Clearwater River upstream 5.5 km (3.4 mi) to an unnamed tributary provides spawning and rearing habitat (CBBTTAT 1998c). Butte Creek from its confluence with the Little North Fork Clearwater River upstream 3.0 km (1.8 mi) to an unnamed tributary provides spawning and rearing habitat (D. Schiff, IDFG, pers. comm., 2002). Rutledge Creek from its confluence with the Little North Fork Clearwater River upstream 5.2 km (3.2 mi) to an unnamed tributary; Jungle Creek from its confluence with the Little North Fork Clearwater River upstream 4.3 km (2.7 mi) to an unnamed tributary; Adair Creek from its confluence with the Little North Fork Clearwater River upstream 4.7 km (2.9

mi) to a break in stream gradient; Lund Creek from its confluence with the Little North Fork Clearwater River upstream 4.3 km (2.7 mi) to a break in stream gradient; and Little Lost Lake Creek from its confluence with the Little North Fork Clearwater River upstream 6.1 km (3.8 mi) to the headwaters provide spawning and rearing habitat (CBBTTAT 1998c). Lost Lake Creek from the mouth upstream 5.7 km (3.6 mi) to the headwaters is occupied (D. Schiff, IDFG pers. comm., 2002), but the habitat usage type is unknown. Another Butte Creek, this one a tributary to the North Fork Clearwater River between the confluence with the Little North Fork Clearwater River and the confluence with Isabella Creek, upstream 2.2 km (1.3 mi) from the mouth is occupied habitat of unknown usage (D. Weigel, U.S. Bureau of Reclamation (BOR), pers. comm., 2002).

(C) Isabella Creek from its confluence with the North Fork Clearwater River upstream 11.6 km (7.2 mi) to the confluence with Falls Creek is occupied rearing habitat (Platts *et al.* 1993) and above that point fish have been found (D. Weigel, pers. comm., 2002; E. Kee, Clearwater National Forest, pers. comm., 2002) of an age class that indicate spawning and rearing is likely occurring.

(D) Beaver Creek from its confluence with the North Fork Clearwater River upstream 4.2 km (2.6 mi) to Sourdough Creek is occupied habitat of unknown usage (D. Schiff, IDFG, pers. comm., 2002). Sneak Creek from its confluence with the North Fork Clearwater River upstream 0.3 km (0.2 mi) to a barrier falls provides spawning and rearing habitat (CBBTTAT 1998c).

(E) Skull Creek from its confluence with the North Fork Clearwater River upstream 24.3 km (15.1 mi) to the headwaters, and Collins Creek from its confluence with Skull Creek upstream 16.2 km (10.0 mi) to a gradient break near the headwaters provide spawning and rearing habitat (CBBTTAT 1998c; E. Kee, pers. comm., 2002). Roaring Creek from its confluence with Skull Creek upstream 4.3 km (2.7 mi) to Frost Creek is of unknown occupancy (*i.e.*, bull trout surveys have not been conducted), but appropriate habitat conditions in Skull Creek (C. Huntington, Clearwater BioStudies, Inc. (CBI), pers. comm., 2002) and the presence of rearing juvenile bull trout in nearby streams support its inclusion as proposed critical habitat necessary to provide spawning and rearing areas to support local population viability and genetic integrity. Frost Creek from its confluence with Roaring Creek upstream 2.7 km (1.7 mi) to the headwaters provides, at a minimum, rearing habitat (E. Kee, pers. comm., 2002).

(F) Quartz Creek from its confluence with the North Fork Clearwater River upstream 19.7 km (12.2 mi) to Henry Creek provides rearing and migratory habitat (CBBTTAT 1998c; D. Schiff, IDFG, pers. comm., 2002).

(G) Rock Creek from its confluence with the North Fork Clearwater River upstream 10.2 km (6.2 mi) to the abandoned road crossing at approximately rkm 10.2 (rmi 6.2), and Lightning Creek from its confluence with Rock Creek upstream 0.8 km (0.5 mi) to an unnamed tributary provide occupied habitat of unknown usage (CBBTTAT 1998c).

(H) Four streams entering the North Fork Clearwater River between Rock Creek and Weitas Creek including Larson Creek from its mouth upstream 1.0 km (0.6 mi) to an unnamed tributary; Little Washington Creek from its mouth upstream 1.7 km (1.1 mi) to Swanson Creek; Washington Creek from its mouth upstream 2.3 km (1.4 mi) to a potential migration barrier; and Orogrande Creek from its mouth upstream 1.6 km (1.0 mi) to a potential migration barrier are likely to be at least seasonally occupied (CBBTTAT 1998c) and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002).

(I) Weitas Creek from its confluence with the North Fork Clearwater River upstream 43.0 km (26.7 mi) to a gradient break near the headwaters provides FMO habitat in the lower reaches and spawning and rearing habitat in the upper reaches. Johnny Creek from its confluence with Weitas Creek upstream 7.2 km (4.5 mi) to a barrier falls provides FMO habitat (D. Weigel, pers. comm., 2002) and possibly spawning and rearing habitat in the upper reaches (E. Kee, pers. comm., 2002). Middle Creek from its confluence with Weitas Creek upstream 15.5 km (9.7 mi) to Beaver Dam Creek, and Little Weitas Creek from its confluence with Weitas Creek upstream 3.8 km (2.4 mi) to Middle Ridge Creek are likely to be at least seasonally occupied (CBBTTAT 1998c) and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002). Johnagan Creek from its confluence with Weitas Creek upstream 4.4 km (2.7 mi) to an unnamed tributary (E. Kee, pers. comm., 2002), Windy Creek from its confluence with Weitas Creek upstream 13.2 km (8.2 mi) to the headwaters (D. Weigel, pers. comm., 2002; CBI 2000), and Liz Creek from its confluence with Weitas Creek upstream 6.2 km (3.8 mi) to the headwaters (D. Weigel, pers. comm., 2002) provide rearing habitat. Corral Creek from its confluence with Weitas Creek upstream 7.1 km (4.4 mi) to the headwaters, and Fro Creek from its confluence with Weitas Creek upstream 1.9 km (1.2 mi) to Bald Mountain Lake Creek are likely to be at least seasonally occupied (P. Murphy, USFS, pers. comm., 2002) and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002).

(J) Death Creek from its confluence with the North Fork Clearwater River upstream 1.0 km (0.6 mi) to a break in channel gradient, Fisher Creek from its confluence with the North Fork Clearwater River upstream 1.2 km (0.7 mi) to a break in channel gradient, and Trail Creek from its confluence with the North Fork Clearwater River upstream 1.8 km (1.1 mi) to an unnamed tributary are likely to be at least seasonally occupied (CBBTTAT 1998c), provide seasonal thermal refuge, and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002).

(K) Fourth of July Creek from its confluence with the North Fork Clearwater River upstream 21.7 km (13.5 mi) to the headwaters is occupied (Platts *et al.* 1993) with spawning and rearing habitat in the upper reaches (CBBTTAT 1998c). Shot Creek from its confluence with Fourth of July Creek upstream 8.0 km (5.0 mi) to the headwaters, and Bill Creek from its confluence with Fourth of July Creek upstream 7.5 km (4.7 mi) to the headwaters are likely to be at least seasonally occupied (P. Murphy, pers. comm., 2002) and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002).

(L) Cold Springs Creek from the confluence with the North Fork Clearwater River upstream to a break in channel gradient at km 4.7 (mi 2.9), and Cool Creek from its confluence with the North Fork Clearwater River upstream 1.2 km (0.8 mi) to an unnamed tributary provide habitat necessary to support additional populations of bull trout identified as essential to the conservation of bull trout (USFWS 2002).

(M) Kelly Creek. from the confluence with the North Fork Clearwater River upstream 41.3 km (25.6 mi) to North Fork Kelly Creek provides migratory habitat in the lower reaches (D. Schiff, IDFG, pers. comm., 2002), and spawning and rearing habitat in the upper reaches (CBBTTAT 1998c). Junction Creek from its confluence with Kelly Creek upstream to an unnamed tributary at km 2.7 (mi 1.7), and Barnard Creek from its confluence with Kelly Creek upstream 8.3 km (5.2 mi) to the headwaters are likely to be at least seasonally occupied (P. Murphy, pers. comm., 2002) and

provide habitat necessary for the recovered distribution of bull trout (USFWS 2002). Bear Creek from its confluence with Kelly Creek upstream 6.1 km (3.8 mi) to a gradient break (D. Weigel, pers. comm., 2002), South Fork Kelly Creek from its confluence with Kelly Creek upstream 4.3 km (2.7 mi) to Williams Creek (CBBTTAT 1998c), Middle Fork Kelly Creek from its confluence with Kelly Creek upstream 5.1 km (3.2 mi) to Kid Lake Creek (P. Murphy, pers. comm., 2002), Kid Lake Creek from its confluence with Middle Fork Kelly Creek upstream to the USFS Trail 567 crossing at rkm 2.9 (rmi 1.8) (P. Murphy, pers. comm., 2002), and North Fork Kelly Creek from its confluence with Kelly Creek upstream 6.2 km (3.8 mi) to an unnamed tributary (CBBTTAT 1998c) are occupied and provide habitat necessary for the recovered distribution of bull trout (USFWS 2002).

(N) Moose Creek from its confluence with Kelly Creek upstream 15.9 km (9.5 mi) to a gradient break near the headwaters (D. Schiff, IDFG, pers. comm., 2002; CBBTTAT 1998c) and its tributaries Ruby Creek from its mouth upstream 2.7 km (1.7 mi) to a break in channel gradient (CBI 1999), Little Moose Creek from its mouth upstream 16.2 km (10.0 mi) to a break in channel gradient near section line 25/26 (D. Schiff, IDFG, pers. comm., 2002), Osier Creek from the mouth upstream 13.0 km (8.1 mi) to the headwaters (D. Schiff, IDFG, pers. comm., 2002), and Swamp Creek from its confluence with Osier Creek upstream 8.7 km (5.4 mi) to an unnamed tributary provide migratory and spawning and rearing habitat. Sugar Creek from its confluence with Moose Creek upstream 6.4 km (4.0 mi) to the headwaters provides habitat necessary for the expansion of bull trout populations that are essential for conservation of the species (USFWS 2002). Pollock Creek from its confluence with Swamp Creek upstream to a barrier falls near rkm 2.7 (rmi 1.7) contains excellent habitat necessary to support the recovered distribution of bull trout (C. Huntington, CBI, pers. comm., 2002; USFWS 2002).

(O) Cayuse Creek from its confluence with Kelly Creek upstream 52.7 km (32.8 mi) to a break in channel gradient near the headwaters provides rearing habitat (CBBTTAT 1998c). Toboggan Creek from its confluence with Cayuse Creek upstream 13.0 km (8.0 mi) to an unnamed tributary (Platts *et al.* 1993; C. Huntington, CBI, pers. comm., 2002), and Monroe Creek from its from its confluence with Cayuse Creek upstream 2.1 km (1.3 mi) to an unnamed tributary (Platts *et al.* 1993; CBBTTAT 1998c) provide, at a minimum, migratory habitat. Gravey Creek from its confluence with Cayuse Creek upstream 14.3 km (8.9 mi) to the headwaters is historic habitat (CBBTTAT 1998c) that is targeted for restoration efforts to provide for the recovered distribution of bull trout (USFWS 2002). Mae Creek from its confluence with Gravey Creek upstream 0.7 km (0.4 mi) to the USFS Road 107A crossing, and Marten Creek from its confluence with Gravey Creek upstream 7.2 km (4.5 mi) to the headwaters area targeted for restoration efforts to provide for the recovered distribution of bull trout (USFWS 2002). Tributaries to Gravey Creek, Howard Creek from its mouth upstream 10.1 km (6.3 mi) to the headwaters, Weasel Creek from its mouth upstream to a break in channel gradient near rkm 2.9 (rmi 1.8), Mink Creek from its mouth upstream to a break in gradient near rkm 3.4 (rmi 2.1), and Silver Creek from its mouth upstream 5.4 km (3.4 mi) to a break in gradient are likely to be at least seasonally occupied, contain excellent bull trout habitat (P. Murphy, pers. comm., 2002) and provide habitat essential to the conservation of bull trout (USFWS 2002).

(P) North Fork Clearwater River from Kelly Forks at rkm 164.8 (rmi 102.4) upstream 47.8 km (29.7 mi) to the headwaters provides FMO habitat. Pete Ott Creek from its confluence with the North Fork Clearwater River upstream 0.7 km (0.5 mi) to an unnamed tributary, and Elizabeth Creek from its confluence with the North Fork Clearwater River upstream 1.2 km (0.7 mi) to an unnamed tributary provide FMO habitat (Platts *et al.* 1993; CBBTTAT 1998c). Hidden Creek from its confluence with the North Fork Clearwater River upstream 3.7 km (2.3 mi) to an unnamed tributary provides rearing habitat (CBBTTAT 1998c). Deception Gulch from its confluence with the North Fork Clearwater River upstream 8.4 km (5.2 mi) to the headwaters is suspected to be occupied (P. Murphy, pers. comm., 2002; CBBTTAT 1998c) and is targeted for restoration efforts and is essential to provide for the conservation of bull trout (USFWS 2002). Lake Creek from its confluence with the North Fork Clearwater River upstream 12.3 km (7.7 mi) to Japanese Creek; Goose Creek from its confluence with Lake Creek upstream 8.2 km (5.1 mi) to an unnamed tributary; Long Creek from its confluence with the North Fork Clearwater River upstream 11.3 km (7.0 mi) to an unnamed tributary; Short Creek from its confluence with Long Creek upstream 3.7 km (2.3 mi) to a break in channel gradient; Rawhide Creek from its confluence with Long Creek upstream 5.5 km (3.4 mi) to a break in channel gradient; Slate Creek from its confluence Long Creek upstream 4.0 km (2.5 mi) to the headwaters; an unnamed Long Creek tributary from its mouth upstream 1.5 km (0.9 mi) to an unnamed tributary; Meadow Creek from its confluence with the North Fork Clearwater River upstream 20.3 km (12.6 mi) to the headwaters; Vanderbilt Gulch from its confluence with the North Fork Clearwater River upstream 9.4 km (5.9 mi) to the headwaters; Chamberlain Creek from its confluence with the North Fork Clearwater River upstream 5.4 km (3.3 mi) to the headwaters; Placer Creek from its confluence with the North Fork Clearwater River upstream 3.6 km (2.3 mi) to the headwaters; Bostonian Creek from its confluence with the North Fork Clearwater River upstream 8.0 km (5.0 mi) to the headwaters; Niagra Gulch from its confluence with the North Fork Clearwater River upstream 1.9 km (1.2 mi) to an unnamed tributary; Boundary Creek from its confluence with the North Fork Clearwater River upstream 3.0 km (1.9 mi) to a break in channel gradient; and Graves Creek from its from its confluence with the North Fork Clearwater River upstream 3.1 km (1.9 mi) to a break in channel gradient provide FMO and spawning and rearing habitat (CBBTTAT 1998c; D. Weigel, pers. comm., 2002 ; CBI 1994; D. Schiff, IDFG, pers. comm., 2002).

(iii) Fish Lake (North Fork) CHSU

The Fish Lake (North Fork) CHSU lies within a small headwater basin of approximately 1,433 ha (3,541 ac) that is situated upstream of Japanese Creek in the Lake Creek drainage of the North Fork Clearwater River system. Located in Clearwater County and entirely within the Clearwater National Forest, the basin is dominated by Fish Lake, the largest mountain lake in north-central Idaho.

(A) Lake Creek (a tributary to the North Fork Clearwater River) from Fish Lake downstream 6.1 km (3.8 mi) to Japanese Creek provides spawning and rearing habitat (CBBTTAT 1998c; D. Weigel, pers. comm., 2002). Fish Lake (47 ha (16 ac) in size) provides FMO habitat. Four unnamed and unmapped inlets that enter Fish Lake on the eastern end of the lake, and a fifth unnamed inlet on the north side from their confluence with Fish Lake upstream to their source(s) provide spawning and rearing habitat (USFWS 2002).

(iv) South Fork Clearwater River CHSU

The South Fork Clearwater River CHSU lies within a drainage basin of approximately 304,516 ha (752,474 ac) that includes the entire stream network of the South Fork Clearwater River located within Idaho and Nez Perce counties. Landownership in the basin is a mixture of Federal (70 percent), private (30 percent), State (less than 1 percent), and Tribal (less than 1 percent), with private lands dominant in the lower portion of the area. However, streams proposed for critical habitat designation are primarily associated with Federal lands. Of 522.7 km (324.8 mi) of streams proposed for designation as critical bull trout habitat, 85 percent are on Federal land, less than 1 percent on State land, less than 1 percent on Tribal land, and 15 percent on private lands.

(A) The South Fork Clearwater River from its mouth on the mainstem Clearwater River upstream 100.3 km (62.3 mi) to its origin at the confluence of the Red River and the American River provides FMO habitat (CBBTTAT 1998d). It also provides a migratory corridor that allows fluvial bull trout to move between local populations within this CHSU and provides the opportunity for genetic exchange between local populations.

(B) Mill Creek from its confluence with the South Fork Clearwater River upstream 13.6 km (8.5 mi) to Merton Creek, and Merton Creek from its mouth upstream 1.6 km (1.0 mi) to an unnamed tributary provide rearing habitat (W. Paradis, USFS, pers. comm., 2002) as well as habitat essential to the conservation of bull trout (USFWS 2002).

(C) Johns Creek from its confluence with the South Fork Clearwater River upstream approximately 30.9 km (19.3 mi) to a gradient break near the headwaters; Gospel Creek from its confluence with Johns Creek upstream 3.1 km (2.0 mi) to Moores Lake Creek; Moores Lake Creek from its confluence with Gospel Creek upstream 3.4 km (2.1 mi) to the USFS Trail 305 crossing; Open Creek from its confluence with Johns Creek upstream 1.5 km (0.9 mi) to a break in channel gradient; Moores Creek from its confluence with Johns Creek upstream 8.2 km (5.1 mi) to a barrier; Twin Lakes Creek from its confluence with Johns Creek upstream 1.9 km (1.5 mi) to Hagen Creek; Hagen Creek from its mouth upstream to an unnamed tributary at rkm 2.3 (rmi 1.5); and Taylor Creek from its confluence with Johns Creek upstream 2.7 km (1.7 mi) to an unnamed tributary provide spawning and rearing habitat (Spangler 1997; CBBTTAT 1998d).

(D) Silver Creek from its confluence with the South Fork Clearwater River upstream 0.2 km (0.1 mi) to a barrier falls; Wing Creek from its confluence with the South Fork Clearwater River upstream 0.3 km (0.2 mi) to a barrier falls; and Twentymile Creek from its confluence with the South Fork Clearwater upstream 0.2 km (0.1 mi) to a barrier falls are positioned between bull trout strongholds in Johns Creek (see above) and Tenmile Creek (see below) and provides foraging and thermal refuge habitat (USFS 1999b).

(E) Tenmile Creek from the confluence with the South Fork Clearwater River upstream 22.6 km (14.0 mi) to a break in channel gradient above Wiseboy Creek; Sixmile Creek from its confluence with Tenmile Creek upstream 1.4 km (0.9 mi) to a barrier falls; Williams Creek from its confluence with Tenmile Creek upstream 8.4 km (5.2 mi) to the headwaters; and Wiseboy Creek from its confluence with Tenmile Creek upstream 0.9 km (0.6 mi) to an unnamed tributary provide spawning and rearing habitat (Spangler 1997; CBBTTAT 1998d; (W. Paradis, USFS, pers. comm., 2002; D. Mays, USFS, pers. comm., 2002).

(F) Buckhorn Creek from its confluence with the South Fork Clearwater River upstream 0.3 km (0.2 mi) to an unnamed tributary foraging and thermal refuge habitat (D. Mays, USFS, pers. comm., 2002).

(G) Newsome Creek from its confluence with the South Fork Clearwater River upstream 25.2 km (15.7 mi) to the headwaters; West Fork Newsome Creek from its confluence with Newsome Creek upstream 8.0 km (5.0 mi) to a migration barrier; and Bear Creek from its confluence with Newsome Creek upstream 2.7 km (1.6 mi) to an unnamed tributary provide spawning and/or rearing habitat (D. Mays, USFS, pers. comm., 2002; CBBTTAT 1998d). Beaver Creek from its confluence with Newsome Creek upstream 8.0 km (5.0 mi) to the headwaters is suspected to provide spawning and rearing habitat (CBBTTAT 1998d) and is essential to the conservation of bull trout (USFWS 2002). Pilot Creek from its confluence with Newsome Creek upstream 9.6 km (5.9 mi) to the headwaters; an unnamed Pilot Creek tributary from its mouth upstream 1.3 km (0.8 mi) to another unnamed tributary; a second unnamed Pilot Creek tributary from its mouth upstream 0.6 km (0.4 mi) to a gradient break near the headwaters; Baldy Creek from its confluence with Newsome Creek upstream 6.0 km (3.8 mi) to an unnamed tributary; and Mule Creek from its confluence with Newsome Creek upstream 0.9 km (0.6 mi) to an unnamed tributary provide spawning and rearing habitat (CBBTTAT 1998d; IDFG, unpublished 2001; D. Mays, USFS, pers. comm., 2002).

(H) Crooked River from its confluence with the South Fork Clearwater River upstream 18.8 km (11.7 mi) to the confluence of the East and West Forks; Relief Creek from its confluence with the West Fork Crooked River upstream 2.2 km (1.3 mi) to East Fork Relief Creek; West Fork Crooked River from its confluence with the East Fork Crooked River upstream approximately 5.4 km (3.4 mi) to a barrier falls; an unnamed tributary to the West Fork Crooked River from its mouth upstream approximately 1.0 km (0.6 mi) to a break in channel gradient; and East Fork Crooked River from its confluence with the West Fork upstream approximately 2.7 km (1.7 mi) to the distribution limit of bull trout provide spawning and rearing habitat (J. Brostrom, IDFG, pers. comm., 2002; D. Mays, USFS, pers. comm., 2002; CBBTTAT 1998d).

(I) Red River from its confluence with the Crooked River and American River upstream 45.9 km (28.5 mi) to the headwaters; Red Horse Creek from its confluence with the Red River upstream 9.1 km (5.6 mi) to an unnamed tributary; Siegel Creek from its confluence with the Red River upstream 2.7 km (1.7 mi) to Boyer Creek; Dawson Creek from its confluence with the Red River upstream 3.7 km (2.3 mi) to the headwaters; Little Moose Creek from its confluence with the Red River upstream 3.0 km (1.8 mi) to an unnamed tributary; Moose Butte Creek from its confluence with the Red River upstream 7.4 km (4.6 mi) to an unnamed tributary; South Fork Red River from its confluence with the Red River upstream 18.7 km (11.7 mi) to the headwaters; Trapper Creek from its confluence with the South Fork Red River upstream 10.6 km (6.6 mi) to the headwaters; West Fork of South Fork Red River from its mouth upstream 4.9 km (3.0 mi) to an unnamed tributary; Middle Fork of South Fork Red River from its mouth upstream 6.1 km (3.8 mi) to the headwaters; Ditch Creek from its confluence with the Middle Fork of South Fork Red River upstream 6.3 km (3.9 mi) to the headwaters; Soda Creek from its confluence with the Red River upstream 1.8 km (1.1 mi) to the limit of known use by bull trout; Baston Creek from its confluence with the Red River upstream 3.6 km (2.2 mi) to the headwaters; Otterson Creek from its confluence with the Red River upstream 5.6 km (3.5 mi) to the headwaters; and

Bridge Creek from its confluence with the Red River upstream 6.4 km (4.0 mi) to the headwaters provide FMO and spawning and rearing habitat (CBBTTAT 1998d; USFS 1999b; IDFG, unpublished 2001; D. Mays, USFS, pers. comm., 2002).

(J) American River from its confluence with the Red River and the South Fork Clearwater River upstream 27.4 km (17.0 mi) to the mouth of Limber Luke Creek provides FMO habitat (CBBTTAT 1998d). Elk Creek from its confluence with the American River upstream 3.8 km (2.3 mi) to Big Elk Creek, and Big Elk Creek from its mouth upstream 15.5 km (9.6 mi) to the headwaters provide habitat that is essential to supporting the recovered distribution of bull trout (USFWS 2002). Little Elk Creek from its confluence with Elk Creek upstream 14.8 km (9.2 mi) to the headwaters is occupied (USFS 1999b) and provides habitat for the recovered distribution of bull trout (USFWS 2002). Kirks Fork of American River from its mouth upstream 2.1 km (1.3 mi) to Wigwam Creek; East Fork American River from its mouth upstream 10.5 km (6.5 mi) to the headwaters; and Flint Creek from its confluence with the East Fork American River upstream 3.0 km (1.9 mi) to an unnamed tributary are likely to be occupied (CBBTTAT 1998d; USFS 1999b) and provide habitat essential to the conservation of bull trout (USFWS 2002). West Fork American River from its mouth upstream 8.0 km (5.0 mi) to the headwaters and Lick Creek from its confluence with the American River upstream 6.0 km (3.7 mi) to the headwaters provide habitat essential to the conservation of bull trout (USFWS 2002).

(v) Lochsa River CHSU

The Lochsa River CHSU lies within a drainage basin of about 303,019 ha (748,773 ac) that includes the entire stream network of the Lochsa River system other than that portion of the Lake Creek drainage upstream of California Creek. Located within Idaho County, landownership is predominantly Federal (95 percent, all in the Clearwater National Forest), but also includes some private property (5 percent).

(A) The mainstem Lochsa River from its confluence with the Selway River upstream 110.5 km (68.7 mi) to its origin at the confluence of Crooked Fork and Colt Killed Creek provides FMO habitat (CBBTTAT 1998b), as well as a migratory corridor that provides an opportunity for bull trout to move between local populations within and outside this CHSU.

(B) Canyon Creek from its confluence with the Lochsa River upstream 1.0 km (0.6 mi) to South Fork. Canyon Creek; Deadman Creek from its confluence with the Lochsa River upstream 3.4 km (2.1 mi) to East Fork. Deadman Creek; Coolwater Creek from its confluence with the Lochsa River upstream 2.2 km (1.4 mi) to an unnamed tributary; Bimerick Creek from its confluence with the Lochsa River upstream 0.7 km (0.4 mi) to a barrier falls; and Fire Creek from its confluence with the Lochsa River upstream 1.2 km (0.8 mi) to an unnamed tributary. Bull trout have been recently noted in Deadman, Coolwater, Fire Creeks (CBI 1992; Platts *et al.* 1993; IDFG Clearwater Data Base, unpublished 2002a). These tributaries provide biologically important opportunities for foraging and thermal refuge along a section of river known for summer water temperatures stressful to salmonids.

(C) Split Creek from its confluence with the Lochsa River upstream 11.3 km (7.0 mi) to the headwaters is occupied (CBI 1992; IDFG Clearwater Data Base, unpublished 2002a) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(D) Old Man Creek from its confluence with the Lochsa River upstream 11.4 km (7.1 mi) to Chimney Creek provides habitat essential to the long-term conservation of bull trout (USFWS 2002).

(E) Fish Creek from its confluence with the Lochsa River upstream 32.5 km (20.2 mi) to the headwaters, and Hungry Creek from its confluence with Fish Creek upstream 21.8 km (13.5 mi) to the headwaters are occupied (Platts *et al.* 1993; CBBTTAT 1998b) and provide habitat essential to the recovered distribution of bull trout (USFWS 2002).

(F) Boulder Creek from its confluence with the Lochsa River upstream 9.8 km (6.1 mi) to Thimble Creek, the approximate location of an apparent migration barrier, is likely occupied (Platts *et al.* 1993; CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(G) Bald Mountain Creek from its confluence with the Lochsa River upstream 2.3 km (1.4 mi) to an unnamed tributary, and Stanley Creek from its confluence with the Lochsa River upstream 2.0 km (1.2 mi) to an unnamed tributary are suspected to be at least seasonally occupied (CBBTTAT 1998b). It also provides subadult or adult bull trout opportunities for foraging and thermal refuge along a section of river where mid-summer water temperatures are well above those preferred by the species.

(H) Indian Grave Creek from its confluence with the Lochsa River upstream 7.7 km (4.8 mi) to the headwaters appears to be at least seasonally occupied (Platts *et al.* 1993; CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(I) Weir Creek from its confluence with the Lochsa River upstream 9.5 km (5.9 mi) to the headwaters is occupied (CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(J) Lake Creek from its mouth at the Lochsa River upstream 16.2 km (10.0 mi) to California Creek; Freezeout Creek from its confluence with Lake Creek upstream 7.3 km (4.6 mi) to the headwaters; and California Creek from its mouth upstream 3.0 km (1.9 mi) to a break in channel gradient provide habitat essential to the conservation of bull trout (USFWS 2002).

(K) Postoffice Creek from its confluence with the Lochsa River upstream 8.9 km (5.5 mi) to a break in channel gradient, and West Fork Postoffice Creek from its mouth upstream 3.6 km (2.2 mi) to an unnamed tributary provide habitat essential to the conservation of bull trout (USFWS 2002). Postoffice Creek is also known to be occupied (IDFG Clearwater Data Base, unpublished 2002a; CBBTTAT 1998b).

(L) Warm Springs Creek from its confluence with the Lochsa River upstream 5.8 km (3.6 mi) to a barrier falls, and Cooperation Creek from its confluence with Warm Springs Creek upstream 5.5 km (3.4 mi) to a break in channel gradient provide spawning and rearing habitat for the Warm Spring local population (USFWS 2002; D. Weigel, pers. comm., 2002).

(M) Fishing (Squaw) Creek from its confluence with the Lochsa River upstream 10.1 km (6.3 mi) to a seasonally dry channel segment; Doe Creek from its confluence with Fishing (Squaw) Creek upstream 8.8 km (5.5 mi) to an unnamed tributary; West Fork Fishing Creek from its mouth upstream 4.2 km (2.6 mi) to an unnamed tributary; Spring Creek from its confluence with West Fork Fishing Creek upstream 1.6 km (1.0 mi); and East Fork Fishing Creek from its mouth upstream 1.5 km (0.9 mi) to a small unnamed tributary provide spawning and rearing habitat for the Fishing (Squaw) Creek local population (USFWS 2002).

(N) Badger Creek from its confluence with the Lochsa River upstream 1.5 km (0.9 mi) to an unnamed tributary, and Wendover Creek from its mouth upstream 1.6 km (1.0 mi) to West Fork Wendover Creek have suitable habitat.

Wendover Creek is likely to be currently occupied, at least seasonally (Platts *et al.* 1993; CBBTTAT 1998b). Badger Creek is identified for high priority restoration activities (*i.e.*, barrier removal at the mouth) and is essential to the conservation of bull trout (USFWS 2002).

(O) Legendary Bear (Papoose) Creek from its confluence with the Lochsa River upstream 3.0 km (1.9 mi) to West Fork Legendary Bear Creek; Parachute Creek from its confluence with Legendary Bear (Papoose) Creek upstream 0.4 km (0.3 mi) to a potential barrier; West Fork Legendary Bear Creek from its mouth upstream 7.3 km (4.5 mi) to an unnamed tributary; and East Fork Legendary Bear Creek from its mouth upstream 4.2 km (2.6 mi) to an unnamed tributary provide spawning and rearing habitat for the Legendary Bear (Papoose) Creek local population of bull trout (CBBTTAT 1998b; USFWS 2002).

(P) Walton Creek from its mouth upstream 4.4 km (2.7 mi) to a break in channel gradient provides spawning and rearing habitat for the Walton Creek local population of bull trout (USFWS 2002).

(Q) Colt Killed Creek from its mouth upstream 33.8 km (21.0 mi) to Garnet Creek; Big Flat Creek from its confluence with Colt Killed Creek upstream 13.5 km (8.4 mi) to its headwaters; Beaver Creek from its mouth at Colt Killed Creek upstream 12.2 km (7.6 mi) to the headwaters; Storm Creek from its mouth at Colt Killed Creek upstream 17.0 km (10.6 mi) to North Fork Storm Creek; and Maud Creek from its confluence with Storm Creek upstream 10.1 km (6.3 mi) to the headwaters provide spawning and rearing habitat for the Colt Killed Creek local population of bull trout (CBI 1989; CBI 1996; P. Murphy, pers. comm., 2002; USFWS 2002).

(R) Crooked Fork from its confluence with the Lochsa River upstream 21.7 km (13.5 mi) to Boulder Creek provides FMO and rearing habitat (CBBTTAT 1998b). Haskell Creek from its confluence with Crooked Fork upstream 4.5 km (2.8 mi) to the headwaters; Rock Creek from its confluence with Crooked Fork upstream 1.8 km (1.1 mi) to a small unnamed tributary; Shotgun Creek from its confluence with Crooked Fork upstream 7.6 km (4.7 mi) to the headwaters; Boulder Creek from its confluence with Crooked Fork upstream 10.5 km (6.5 mi) to an unnamed tributary; Fox Creek from its mouth at Boulder Creek upstream 5.6 km (3.5 mi) to a gradient break near the headwaters; Williams Lake Creek from its confluence with Boulder Creek upstream 4.2 km (2.6 mi) to an unnamed tributary; Crooked Fork Creek from its confluence with Boulder Creek upstream 12.4 km (7.7 mi) to a gradient break near the headwaters; Hopeful Creek from its confluence with Crooked Fork Creek upstream 7.4 km (4.6 mi) to the headwaters; and an unnamed Hopeful Creek tributary from its mouth upstream 4.7 km (2.9 mi) to the headwaters provide spawning and rearing habitat for the Crooked Fork local population (Watson and Hillman 1997; CBI 1997; CBBTTAT 1998b; USFWS 2002).

(S) Brushy Fork Creek from the confluence with the Crooked Fork upstream 16.2 km (10.0 mi) to Spruce Creek; Twin Creek from its confluence with Brushy Fork Creek upstream 4.7 km (2.9 mi) to a barrier falls; Spruce Creek from its confluence with Brushy Fork Creek upstream 5.6 km (3.5 mi) to South Fork Spruce Creek; Shoot Creek from its confluence with Spruce Creek upstream 3.4 km (2.1 mi) to a break in channel gradient; South Fork Spruce Creek from its mouth upstream 6.4 km (4.0 mi) to a break in channel gradient; and North Fork Spruce Creek from its mouth upstream 4.0 km (2.5 mi) to an unnamed tributary provide spawning and rearing habitat for the Brushy Fork Creek local population (CBBTTAT 1998b; USFWS 2002; D. Weigel, pers. comm., 2002).

(vi) Fish Lake (Lochsa) CHSU

The Fish Lake (Lochsa) CHSU lies within a 2,131 ha (5,267 ac) glacially formed drainage basin in the headwaters of Lake Creek, a major tributary to the Lochsa River. It is in Idaho County and is situated entirely within a portion of the Selway-Bitterroot Wilderness Area administered by the Clearwater National Forest. This area supports one of only two naturally adfluvial bull trout populations within the entire Clearwater River unit.

(A) Lake Creek from California Creek upstream 5.8 km (3.6 mi) to Fish Lake, all 22 ha (54 ac) of Fish Lake, and Lake Creek from Fish Lake upstream 2.3 km (1.5 mi) to a break in channel gradient near the headwaters constitutes all habitat thought to be used by the Fish Lake Creek local population. Bull trout spawn in Lake Creek both below and above Fish Lake (P. Murphy, pers. comm., 2002), and grow to adulthood in the lake itself (USFWS 2002).

(vii) Selway River CHSU

The Selway River CHSU lies within a 520,232 ha (1,285,516 ac) drainage basin that includes the Selway River and all of its tributaries. Located in Idaho and Clearwater counties, 85 percent of this basin is within the boundaries of the Selway-Bitterroot and Frank Church-River of No Return wilderness areas (USFS 2001b). Virtually all of the Selway River CHSU is administered by three National Forests: the Nez Perce, Bitterroot, and Clearwater (USFS 1999b). A total of approximately 780.8 km (485.3 mi) of stream are proposed for critical habitat designation as part of the Selway River CHSU. The proposed designations are comprised of Federal land (nearly 100 percent) and private lands (less than 1 percent).

(A) The Selway River from its confluence with the Lochsa River upstream 146.4 km (88.5 mi) to Wilkerson Creek provides FMO habitat for fluvial bull trout (CBBTTAT 1998b), and a highly functional migratory corridor that provides an opportunity for bull trout to move between multiple local populations within and outside this CHSU. Recent field sampling indicates that above the Little Clearwater River confluence, at rkm 121.3 (rmi 75.3), the Selway River is also used as rearing habitat by juvenile bull trout (General Parr Monitoring database 2002). Goddard Creek, a tributary to the Selway River between the mouth and O'Hara Creek, from its mouth upstream 0.8 km (0.5 mi) to an unnamed tributary, is likely to be at least seasonally occupied by foraging adults (CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(B) O'Hara Creek from its confluence with the Selway River upstream 12.4 km (7.7 mi) to its origin at the confluence of the East and West Forks of O'Hara Creek; East Fork O'Hara Creek from its mouth upstream 8.1 km (5.0 mi) to the headwaters; and West Fork O'Hara Creek from its mouth upstream 9.3 km (5.8 mi) to the headwaters are known to be occupied in the lower reaches (IDFG General Parr Monitoring database, unpublished 2002b) and provide habitat essential to the conservation of bull trout (USFWS 2002).

(C) Four tributaries to the Selway River between O'Hara Creek and Gedney Creek, Rackliff Creek from its mouth upstream 2.2 km (1.4 mi) to an unnamed tributary; Boyd Creek from its mouth upstream 1.9 km (1.2 mi) to a break in channel gradient; Glover Creek from its mouth upstream 1.5 km (0.9 mi) to an unnamed tributary; and Falls Creek from its mouth upstream 1.4 km (0.9 mi) to a break in channel gradient are suspected to provide at least seasonal habitat for foraging bull trout (CBBTTAT 1998b), are prioritized for restoration efforts (Boyd Creek), and provide habitat essential to the conservation of bull trout (USFWS 2002).

(D) Gedney Creek from its confluence with the Selway River upstream 12.5 km (7.8 mi) to an unnamed tributary and West Fork Gedney Creek from its mouth upstream 2.0 km (1.2 mi) to a barrier falls are occupied. Spawning and rearing is suspected (A. Byrne, IDFG, pers. comm., 2002) and this area provides habitat essential to the conservation of bull trout (USFWS 2002).

(E) Meadow Creek from its confluence with the Selway River upstream 67.9 km (42.2 mi) to an unnamed tributary; Schwar Creek from its confluence with Meadow Creek upstream 3.5 km (2.2 mi) to a barrier falls; and East Fork Meadow Creek from its mouth upstream 11.1 km (6.9 mi) to the headwaters provide spawning and rearing habitat for the Meadow Creek local population (CBBTTAT 1998b; IDFG/FIS database, unpublished 2002c).

(F) Two tributaries to the Selway River between Meadow Creek and Mink Creek, Otter Creek from its confluence with the Selway River upstream 1.0 km (0.6 mi) to a barrier falls (suspected to be occupied (CBBTTAT 1998b)), and Three Links Creek from its confluence with the Selway River upstream 6.5 km (4.0 mi) to West Fork Three Links Creek (documented as occupied (USFWS 2002)) provide habitat essential to the conservation of bull trout (USFWS 2002).

(G) Mink Creek from its confluence with the Selway River upstream 11.9 km (7.4 mi) to an unnamed tributary is suspected to be occupied (CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(H) Marten Creek from its confluence with the Selway River upstream 18.3 km (11.4 mi) to a break in channel gradient near the headwaters is occupied (CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(I) Moose Creek from its confluence with the Selway River upstream 6.1 km (3.8 mi) to the confluence of North Fork Moose Creek and East Fork Moose Creek; North Fork Moose Creek from its mouth upstream 19.4 km (12.0 mi) to an unnamed tributary; Rhoda Creek from its confluence with North Fork Moose Creek upstream 5.0 km (3.1 mi) to Wounded Doe Creek; Wounded Doe Creek from its mouth upstream 11.4 km (7.1 mi) to an unnamed tributary; East Fork Moose Creek from its mouth upstream 26.7 km (16.6 mi) to a potential barrier falls; and Cedar Creek from its mouth at East Fork Moose Creek upstream 10.1 km (6.3 mi) to an unnamed tributary provide spawning and rearing habitat (CBBTTAT 1998b; USFS 2001b; IDFG Clearwater database, unpublished 2002a).

(J) Pettibone Creek from its confluence with the Selway River upstream 5.3 km (3.3 mi) to an unnamed tributary is suspected to be occupied (CBBTTAT 1998b) and provides habitat essential to the conservation of bull trout (USFWS 2002).

(K) Bear Creek from its confluence with the Selway River upstream 33.2 km (20.7 mi) to an unnamed tributary; Cub Creek from its confluence with Bear Creek upstream 15.0 km (9.3 mi) to a barrier falls; Paradise Creek from its confluence with CubCreek upstream 20.1 km (12.5 mi) to a break in channel gradient near the headwaters; and Brushy Fork Creek from its confluence with Cub Creek upstream 11.3 km (7.0 mi) to a break in channel gradient near the headwaters are known to be used by the Bear Creek local population for foraging, as well as spawning and rearing (CBBTTAT 1998b; USFS 2001b). A small juvenile fish sampled low in the system (IDFG General Parr Monitoring database, unpublished 2002b) suggests spawning activity occurring in upper portions of the watershed.

(L) Running Creek from its confluence with the Selway River upstream 31.4 km (19.5 mi) to an unnamed tributary; Eagle Creek from its confluence with Running Creek upstream 18.9 km (11.7 mi) to a gradient break near the headwaters; Lynx Creek from its confluence with Running Creek upstream 4.1 km (2.6 mi) to an unnamed tributary; and South Fork Running Creek from its mouth upstream 3.3 km (2.0 mi) to an unnamed tributary provide spawning and rearing habitat for the Running Creek local population (CBBTTAT 1998b; USFS 2001b; IDFG General Parr Monitoring database, unpublished 2002b). Tom Creek from its confluence with Running Creek upstream 6.1 km (3.8 mi) to the headwaters provides high quality habitat to provide for the recovered distribution of the Running Creek local population, and is essential to the conservation ofbull trout (USFWS 2002).

(M) White Cap Creek from its confluence with the Selway River upstream 39.0 km (24.2 mi) to a gradient break near the headwaters and Canyon Creek from its confluence with White Cap Creek upstream 17.8 km (11.1 mi) to an unnamed tributary provide spawning and rearing habitat for the White Cap Creek local population (CBBTTAT 1998b; M. Jakober, USFS, pers. comm., 2002).

(N) Indian Creek from its confluence with the Selway River upstream 17.3 km (10.8 mi) to an unnamed tributary; Schofield Creek from its confluence with Indian Creek upstream 8.4 km (5.2 mi) to an unnamed tributary; and Burnt Strip Creek from its confluence with Schofield Creek upstream 4.3 km (2.7 mi) to the headwaters provide spawning and rearing habitat for the Indian Creek local population (CBBTTAT 1998b; M. Jakober, USFS, pers. comm., 2002).

(O) Little Clearwater River from its confluence with the Selway River upstream 19.9 km (12.3 mi) to an unnamed tributary; Flat Creek from its confluence with the Little Clearwater River upstream 8.7 km (5.4 mi) to an unnamed tributary; Salamander Creek from its confluence with the Little Clearwater River upstream 7.7 km (4.8 mi) to an unnamed tributary; and Burnt Knob Creek from its confluence with the Little Clearwater River upstream 4.7 km (2.9 mi) to an unnamed tributary provide spawning and rearing habitat for the Little Clearwater River local population (CBBTTAT 1998b; M. Jakober, USFS, pers. comm., 2002).

(P) Magruder Creek from its confluence with the Selway River upstream 2.6 km (1.7 mi) provides spawning and rearing habitat.

(Q) Deep Creek from its confluence with the Selway River upstream 21.3 km (13.3 mi) to a break in channel gradient; Cayuse Creek from its mouth upstream 10.4 km (6.5 mi) to the headwaters; Vance Creek from its mouth upstream 0.9 km (0.6 mi) to an unnamed tributary; and Slow Gulch Creek from its mouth upstream 2.2 km (1.3 mi) to Lazy Creek. Deep, Vance and Slow Gulch creeks provide spawning and rearing habitat for the Deep Creek local population (USFS 2001b; M. Jakober, USFS, pers. comm., 2002). Cayuse Creek is likely to be occupied based on habitat quality (M. Jakober, USFS, pers. comm., 2002), it provides habitat that is essential for the recovered distribution of the Deep Creek local population.

(R) Upper Selway River from Wilkerson Creek upstream 20.1 km (12.5 mi) to the headwaters; Wilkerson Creek from its confluence with the Selway River upstream 12.8 km (8.0 mi) to a break in channel gradient near the headwaters; Storm Creek from its confluence with Wilkerson Creek upstream 10.1 km (6.3 mi) to a gradient break near the headwaters; French Creek from its confluence with Wilkerson Creek upstream 3.0 km (1.9 mi) to an unnamed tributary; Swet Creek from its confluence with the Selway River upstream 13.7 km (8.5 mi) to the headwaters; Surprise Creek from its confluence with the Selway River upstream 7.6 km (4.7 mi) to the headwaters; and South Fork Surprise Creek from its mouth upstream 6.9 km (4.3 mi) to the headwaters provide

spawning and rearing habitat for the Upper Selway River local population (M. Jakober, USFS, pers. comm., 2002).

(20) Unit 16: Salmon River Basin

The Salmon River basin extends across central Idaho from the Snake River to the Montana border. The critical habitat unit includes 7,688 km (4,777 mi) of stream extending across portions of Adams, Blaine, Custer, Idaho, Lemhi, Nez Perce, and Valley counties in Idaho. There are 10 CHSUs: Little-Lower Salmon River, Middle Salmon River Chamberlain, South Fork Salmon River, Middle Fork Salmon River, Middle Salmon River-Panther Creek, Opal Lake, Lemhi River, Lake Creek, Pahsimeroi River, and Upper Salmon River. Currently, there are 125 known bull trout local populations in this unit. The Draft Recovery Plan (USFWS 2002) indicates the need to maintain all known local populations and identifies the establishment of nine additional populations as necessary for bull trout recovery. The areas proposed as critical habitat within this unit are essential to maintaining the known populations and supporting the additional populations, all of which are essential to the conservation of bull trout.

(i) Little-Lower Salmon CHSU

Approximately 494 km (307 mi) of stream is proposed as critical habitat in drainages associated with the Little Salmon River and the Salmon River downstream of French Creek (rkm 166.0 (rmi 103.1)). Landownership within the CHSU is approximately 77 percent Federal, 21 percent private, and 1 percent State. This CHSU supports seven existing bull trout local populations, and locations for three additional local populations essential for bull trout recovery were identified in the Draft Recovery Plan (USFWS 2002). The stream segments proposed for designation as critical habitat in the Little-Lower Salmon CHSU are described below.

(A) The Salmon River from its confluence with the Snake River upstream 166 km (103.2 mi) to the confluence with French Creek. This stretch of the Salmon River provides foraging and overwinter habitat, and connectivity between the bull trout local populations in this area. This stretch also provides a migratory corridor for movement from upstream portions of the Salmon River to the Snake River.

(B) Slate Creek from its confluence with the Salmon River (at rkm 106.4 (rmi 66.1)) upstream 21.4 km (13.3 mi) to the confluence with Little Slate Creek and extending into Little Slate Creek for a distance of 14.4 km (9.0 mi), Van Buren Creek from the confluence with Little Slate Creek upstream 8.5 km (5.3 mi), Deadhorse Creek from its mouth upstream 9.2 km (5.7 mi); and Willow Creek from its junction with Little Slate Creek upstream 2.3 km (1.4 mi) to its headwaters.

(C) John Day Creek from its confluence with the Salmon River at rkm 116.5 (rmi 72.3) upstream 13.8 km (8.6 mi) to its headwaters and extending up East Fork John Day Creek for a distance of 6.4 km (4 mi).

(D) The Little Salmon River from its confluence with the Salmon River at rkm 139.5 (rmi 86.6) upstream 33.8 km (21.0 mi) to a barrier.

(E) Rapid River from its confluence with the Little Salmon River at rkm 6.8 (rmi 4.2) upstream 36.5 km (22.7 mi) to its headwaters and extending 16.6 km (10.3 mi) up the West Fork Rapid River, 6.9 km (4.3 mi) up the Lake Fork Rapid River, and 5 km (3.1 mi) up the Granite Fork of the Lake Fork.

(F) Boulder Creek from its confluence with the Little Salmon River at rkm 28.5 (rmi 17.7) upstream 30 km (18.7 mi) to its headwaters and extending up Yellow Jacket Creek for a distance of 2.9 km (1.8 mi).

(G) Hazard Creek from the confluence with the Little Salmon River at rkm 31.4 (rmi 19.5) upstream 17.5 km (15.8 mi) to a headwater lake and extending up Hard Creek for a distance of 7.6 km (4.7 mi) to a barrier falls. A natural bedrock falls on Hazard Creek at rkm 6.1 (rmi 3.8) is a barrier to upstream fish movement. Hard Creek enters downstream of the barrier falls and a fluvial bull trout local population has been documented in Hard and lower Hazard Creeks (CBBTTAT 1998e).

(H) Lake Creek from its confluence with the Salmon River at rkm 149.7 (rmi 93.0) upstream for 14 km (8.7 mi) to its headwaters.

(I) Partridge Creek from its confluence with the Salmon River at rkm 159.6 (rmi 99.1) upstream for 18.7 km (11.6 mi) to its headwaters.

(J) Elkhorn Creek from its confluence with the Salmon River at rkm 162.7 (rmi 101.0) upstream for 17.7 km (11 mi) to its headwaters.

(K) French Creek from its confluence with the Salmon River at rkm 166.0 (rmi 103.1) upstream for 33.6 km (20.9 mi) to its headwaters and extending up North Creek for 6.1 km (3.8 mi).

(ii) Middle Salmon-Chamberlain CHSU

Approximately 528 km (328 mi) of stream is proposed as critical habitat in drainages associated with the section of the Salmon River from French Creek (rkm 166.0 (rmi 103.1)) upstream to Chamberlain Creek (rkm 281.9 (rmi 175.1)). Landownership within the CHSU is approximately 98 percent USFS, 1 percent BLM, and 1 percent private. This CHSU supports nine existing bull trout local populations, and the Draft Recovery Plan (USFWS 2002) identifies all of them as essential for conservation of bull trout. It also identifies a drainage where the establishment of an additional population is essential to the conservation of the species. The stream segments that make up the Middle Salmon-Chamberlain CHSU are described below.

(A) The Salmon River from its confluence with French Creek upstream 111.9 km (69.5 mi) to the confluence with Chamberlain Creek. This stretch of the Salmon River provides foraging and overwintering habitat, as well as connectivity between the bull trout local populations in this area. This stretch also provides a migratory corridor for movement from upstream portions of the Salmon River to the Snake River. All other stream segments in this CHSU are tributaries of the Salmon River and primarily provide spawning and rearing habitat.

(B) Fall Creek from its confluence with the Salmon River at rkm 172.5 (rmi 107.1) upstream 14.6 km (9.1 mi) to its headwaters and extending up East Fork Fall Creek for a distance of 7.2 km (4.5 mi).

(C) Wind River from its confluence with the Salmon River at rkm 176.9 (rmi 109.9) upstream 22.5 km (14.0 mi) to the headwaters.

(D) Sheep Creek from its confluence with the Salmon River at rkm 187.6 (rmi 116.5) upstream 23.8 km (14.8 mi) to its headwaters.

(E) California Creek from its confluence with the Salmon River at rkm 189.9 (rmi 117.9) upstream 19.5 km (12.1 mi) to its headwaters.

(F) Crooked Creek from its confluence with the Salmon River at rkm 200.5 (rmi 124.5) upstream 34.3 km (21.3 mi) to the headwaters and extending up Lake Creek for a distance of 21.1 km (13.1 mi).

(G) Warren Creek from its confluence with the Salmon River at rkm 208.6 (rmi 129.5) upstream 31.1 km (19.3 mi) to the headwaters and extending up the following Warren Creek tributaries: Schissler Creek for a distance of 6.8 km (4.2 mi); Guard Creek for a distance of 3.9 km (2.4 mi); Slaughter Creek for a distance of 7.7 km (4.8 mi); Mayflower Creek for a distance of 5.6 km (3.5 mi); and Webfoot Creek for a distance of 3.5 km (2.2 mi).

(H) Rhett Creek from its confluence with the Salmon River at rkm 230.0 (rmi

142.8) upstream 1.2 km (0.8 mi) to a barrier falls.

(I) Little Mallard Creek from its confluence with the Salmon River at rkm 244.6 (rmi 151.9) upstream 0.8 km (0.5 mi) to a falls.

(J) Big Mallard Creek from its confluence with the Salmon River at rkm 247.0 (rmi 153.4) upstream 1.1 km (0.7 mi) to Mallard Creek Falls.

(K) Bargamin Creek from its confluence with the Salmon River at rkm 255.2 (rmi 158.5) upstream 37.5 km (23.3 mi) to its headwaters.

(L) Sabe Creek from its confluence with the Salmon River at rkm 271.6 (rmi 168.7) upstream 24.5 km (15.2 mi) to its headwaters.

(M) Big Harrington Creek from its confluence with the Salmon River at rkm 278.2 (rmi 172.8) upstream 13.5 km (8.4 mi) to its headwaters.

(N) Chamberlain Creek from its confluence with the Salmon River at rkm 281.9 (rmi 175.1) upstream 43.8 km (27.2 mi) to its headwaters and extending up the following tributaries: McCalla Creek for a distance of 25.6 km (15.9 mi) from its mouth to to its headwaters; Whimstick Creek from its junction with McCalla Creek upstream 17.4 km (10.8 mi); West Fork Chamberlain Creek from its mouth upstream14.6 km (9.1 mi) to its headwaters; Game Creek from its mouth on West Fork Chamberlain Creek upstream 8.4 km (5.2 mi); Moose Creek from its mouth upstream10 km (6.2 mi) to its headwaters; South Fork Chamberlain Creek from its mouth upstream 7.2 km (4.5 mi) to its headwaters; and Rim Creek from its junction with Chamberlain Creek upstream 8.4 km (5.2 mi) to its headwaters.

(iii) South Fork Salmon River CHSU

Approximately 834 km (518 mi) of stream is proposed as critical habitat in drainages associated with the South Fork of the Salmon River. Landownership within the CHSU is 96 percent Federal land, 1 percent State land, and 3 percent private land. This CHSU supports 28 existing bull trout local populations and one potential local population, all of which are identified as essential for bull trout recovery in the Draft Recovery Plan (USFWS 2002). The stream segments proposed for critical habitat that make up the South Fork Salmon River CHSU are described below.

(A) South Fork Salmon River from its confluence with the Salmon River upstream 141.6 km (88 mi) to its headwaters. Most of this stretch provides FMO habitat, and allows for the maintenance of genetic exchange by local and potential local populations both within and between CHSUs. The upper 13.3 km (8.3 mi) is known to support bull trout spawning and/or early rearing, and is considered to be a distinct local population. All other stream segments in this CHSU are tributaries of the South Fork Salmon River and primarily provide spawning and rearing habitat.

(B) Pony Creek from its confluence with the South Fork Salmon River upstream 14.7 km (9.1 mi) to its headwaters.

(C) Elk Creek from its confluence with the South Fork Salmon River upstream 14.3 km (8.9 mi) to its headwater and extending up West Fork Elk Creek for a distance of 10.7 km (6.6 mi), and up South Fork Elk Creek for a distance of 4.4 km (2.7 mi).

(D) The Secesh River from its confluence with South Fork Salmon River upstream 45.3 km (28.1 mi) to Lake Creek. The lower 39 km (24 mi) stretch of this river is used primarily as FMO habitat (IDFG/FIS database, unpublished 2002c). The uppermost 6 km (4 mi) is known to support bull trout spawning and/or early rearing (IDFG/FIS database, unpublished 2002c; USFWS, *in litt.,* 2002b). A number of bull trout local populations are associated with tributaries of the Secesh River; each of the following streams are known to support bull trout spawning and/or early rearing (USFWS, *in litt.,* 2002b; (IDFG/FIS database, unpublished 2002c): Lick Creek from its confluence with the Secesh River upstream 16.3 km (10.2 mi) and extending up Hum Creek for a distance of 3 km (1.9 mi); Loon Creek from its confluence with the Secesh River upstream for a distance of 15.8 km (9.8 mi); Victor Creek from its confluence with the Secesh River upstream 11.2 km (6.9 mi) to its headwaters and extending up Willowbasket Creek for a distance of 6.6 km (4.1 mi); Grouse Creek from its confluence with the Secesh River upstream 7.2 km (4.5 mi) and extending up Flat Creek for a distance of 6.7 km (4.1 mi) and up Sand Creek for 4.1 km (2.6 mi); Ruby Creek from its confluence with the Secesh River upstream 9.4 km (5.8 mi) to its headwaters; Summit Creek from its confluence with the Secesh River upstream 15.6 km (9.7 mi) to its headwaters and extending up Josephine Creek for a distance of 4 km (2.5 mi); Lake Creek from its confluence with the Secesh River upstream 21.7 km (13.5 mi) to its headwaters and extending up Nethker Creek for 6.1 km (3.8 mi), Threemile Creek for 5.8 km (3.6 mi), and Willow Creek for 9 km (5.6 mi).

(E) East Fork South Fork Salmon River from its confluence with South Fork Salmon River upstream 52.2 km (32.4 mi) to its headwaters. Downstream of Fiddle Creek (rkm 42.7 (rmi 26.5)), the East Fork is occupied FMO habitat; above Fiddle Creek it is occupied spawning and rearing habitat. A number of bull trout local populations extend up tributaries of the upper East Fork South Fork Salmon River; each of the following streams are known to support bull trout spawning and/or early rearing (USFWS, *in litt.,* 2002b; IDFG/FIS database, unpublished 2002c): Quartz Creek for a distance of 12.6 km (7.8 mi) to its headwaters; Profile Creek for a distance of 13.2 km (8.2 mi) to its headwater and extending up Missouri Creek for 4.8 km (3.0 mi); Tamarack Creek for a distance of 11.9 km (7.4 mi) and including 5.8 km (3.6 mi) of Burn Creek; Salt Creek for a distance of 3.8 km (2.4 mi); Sugar Creek for a distance 11.5 km (7.1 mi) and including 5.5 km (3.4 mi) of Cinnabar Creek and 4.2 km (2.6 mi) of Cane Creek; and Meadow Creek for a distance of 7.7 km (4.8 mi).

(F) Johnson Creek from its confluence with East Fork South Fork Salmon River upstream 61.8 km (38.4 mi) to its headwater. Downstream of Sand Creek (rkm 46.4 (rmi 28.8)), Johnson Creek is occupied FMO habitat; the 15.4 km (9.6 mi) above Sand Creek is potential spawning and rearing habitat containing many of the primary constituent elements. Upper Johnson Creek is identified in the Draft Recovery Plan (USFWS 2002) as a potential local population with a number of known bull trout local populations extending up tributaries of Johnson Creek. Each of the following streams and lakes are known to support bull trout: Riordan Creek for a distance of 13.9 km (8.6 mi) above and below Riordan Lake, and including the 30 ha (75 ac) lake; Trapper Creek for a distance of 14.5 km (9.0 mi) and including 4.0 km (2.5 mi) of an unnamed tributary on the south side of Trapper Creek; and Burntlog Creek for a distance of 22.7 km (14.1 mi) and including 7.3 km (4.5 mi) of Buck Creek, 10.5 km (6.5 mi) of East Fork Burntlog Creek, and an unnamed tributary to East Fork Burntlog Creek from its mouth, approximately 4.4 km (2.8 mi) upstream of the confluence of Burntlog and East Fork Burntlog creeks, upstream 3.2 km (2 mi) to its headwaters.

(G) The following tributaries of the South Fork Salmon River that enter the river upstream of the East Fork South Fork Salmon River are known to support bull trout local populations and are proposed as critical habitat: Fitsum Creek from its confluence with South Fork Salmon River upstream for a distance of 3.7 km (2.3 mi) and including 13.0 km (8.1 mi) of North

Fork Fitsum Creek; Buckhorn Creek from its confluence with South Fork Salmon River upstream for a distance of 16.6 km (10.3 mi) and extending 7.7 km (4.8 mi) up Little Buckhorn Creek and 6.1 km (3.8 mi) up South Fork Buckhorn Creek; Cougar Creek from its confluence with South Fork Salmon River upstream for a distance of 13.8 km (8.6 mi); Fourmile Creek from its confluence with South Fork Salmon River upstream for a distance of 12.1 km (7.5 mi); Blackmare Creek from its confluence with South Fork Salmon River upstream for a distance of 9.1 km (5.6 mi) and extending 7.4 km (4.6 mi) up South Fork Blackmare Creek; Six Bit Creek from its confluence with South Fork Salmon River upstream for a distance of 10 km (6.2 mi); Warm Lake Creek from its confluence with South Fork Salmon River upstream for a distance of 4.5 km (2.8 mi) up to and including Warm Lake (167 ha (412 ac), and extending 6.5 km (4.1 mi) up Cabin Creek and 5.1 km (3.2 mi) up Reeves Creek; Curtis Creek from its confluence with South Fork Salmon River upstream for a distance of 12.2 km (7.6 mi), including two unnamed tributaries to Curtis Creek upstream approximately 1.7 km (1 mi) in each, and extending 7.2 km (4.5 mi) up Trail Creek, including 1.6 km (1 mi) of an unnamed tributary to Trail Creek; Bear Creek from its confluence with South Fork Salmon River upstream for a distance of 8.5 km (5.3 mi); Tyndall Creek from its confluence with South Fork Salmon River upstream for a distance of 5.8 km (3.6 mi); Rice Creek from its confluence with South Fork Salmon River upstream for a distance of 10.2 km (6.3 mi) and extending 1.4 km (0.9 mi) up an unnamed tributary; an unnamed tributary to South Fork Salmon River (just below Yellowjacket Creek) from its confluence with the South Fork upstream 2.0 km (1.3 mi); and Mormon Creek from its confluence with South Fork Salmon River upstream for a distance of 4.8 km (3.0 mi).

(iv) Middle Fork Salmon River CHSU

Approximately 1,905 km (1,184 mi) of stream is proposed as critical habitat in drainages associated with the Middle Fork of the Salmon River. Landownership within the CHSU is approximately 98 percent USFS, 2 percent private, and less than 1 percent State. This CHSU supports 28 existing bull trout local populations, all of which are identified as essential for bull trout recovery in the Draft Recovery Plan (USFWS 2002). The stream segments that comprise proposed critical habitat in this CHSU are described below.

(A) Middle Fork Salmon River from its confluence with the Salmon River upstream for a distance of 168.4 km (104.6 mi) to Bear Valley Creek. The Middle Fork provides FMO habitat, and allows for the maintenance of genetic exchange by local and potential local populations both within and between CHSU. All other stream segments in this CHSU are tributaries of the Middle Fork Salmon River and primarily provide spawning and rearing habitat (Southwest Basin Native Fish Technical Advisory Group (SBNFTG) 1998; USFWS, in *litt.,* 2002b).

(B) Big Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 74.2 km (46.1 mi) to its headwater and extending up the following tributaries: Rush Creek for a distance of 27.4 km (17 mi) and including 7.8 km (4.9 mi) of South Fork Rush Creek; Cabin Creek for a distance of 14.4 km (8.9 mi); Cave Creek for a distance of 19.4 km (12 mi); Monumental Creek for a distance of 41.1 km (25.6 mi) and including 12.8 km (7.9 mi) of Snowslide Creek, and 12.7 km (7.9 mi) of West Fork Monumental Creek; Crooked Creek for a distance of 11.1 km (6.9 mi); Big Ramey Creek for a distance of 18.8 km (11.7 mi) and including 5.8 km (3.6 mi) of East Fork Big Ramey Creek; Beaver Creek for a distance of 18.8 km (11.7 mi) and including 11.2 km (7.0 mi) of Hand Creek and 5.8 km (3.6 mi) of Boulder Creek; Smith Creek for a distance of 10 km (6.2 mi) and including 3.8 km (2.4 mi) of Middle Fork Smith Creek and 4.9 km of South Fork Smith Creek; Logan Creek for a distance of 13.4 km (8.3 mi); and Belvidere Creek for a distance of 4.7 km (2.9 mi).

(C) Wilson Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 24.2 km (15.1 mi).

(D) Soldier Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 14.4 km (8.9 mi).

(E) Brush Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 10.7 km (6.6 mi).

(F) Sheep Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 16.3 km (10.1 mi).

(G) Camas Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 51 km (31.7 mi) and extending up the following tributaries: Yellow Jacket Creek for a distance of 36.5 km (22.7 mi) and including 6.5 km (4.0 mi) of Lake Creek, 13.6 km (8.4 mi) of Hoodoo Creek, 8.4 km (5.2 mi) of Little Jacket Creek, and 5.2 km (3.2 mi) of Shovel Creek; Woodtick Creek for a distance of 9.6 km (6 mi); West Fork Camas Creek for a distance of 14.7 km (3.1 mi) and including 7.8 km (4.8 mi) of Pole Creek; Silver Creek for a distance of 29.1 km (18.1 mi) and including 7.8 km (4.8 mi) of Arrastra Creek, 6.9 km (4.3 mi) of Birdseye Creek, and 3.5 km (2.2 mi) of Blue Fork Silver Creek; Castle Creek for a distance of 15.0 km (9.3 mi); Furnace Creek for a distance of 12.9 km (8.0 mi); White Goat Creek for a distance of 7.1 km (4.4 mi); South Fork Camas Creek for a distance of 13.2 km (8.2 mi); Fly Creek for a distance of 6.2 km (3.9 mi); and J Fell Creek for a distance of 8.5 km (5.3 mi).

(H) Norton Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 12.8 km (8.0 mi).

(I) Loon Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 54.5 km (33.9 mi) and extending up into the following tributaries: Cache Creek for a distance of 11.5 km (7.1 mi); Bear Creek for a distance of 4.3 km (2.7 mi); Cold Spring Creek for a distance of 5.8 km (3.6 mi); Jack Creek for a distance of 3.1 km (1.9 mi); Indian Creek for a distance of 8.7 km (5.4 mi); Cabin Creek for a distance of 10.6 km (6.6 mi); Rock Creek for a distance of 13.0 km (8.1 mi); Warm Spring Creek for a distance of 30.1 km (18.7 mi) and extending 2.1 km (1.3 mi) up Fir Creek, 2.8 km (1.7 mi) up Cat Creek, 4.5 km (2.8 mi) up MaHoney Creek, 3.2 km (2 mi) up Parker Creek, 5.5 km (3.4 mi) up Wickiup Creek, 7.0 km (4.3 mi) up Trapper Creek, 3.8 km (2.4 mi) up McKee Creek, 3.7 km (2.3 mi) up Rush Creek, and 1.4 km (0.9 mi) up South Fork Warm Spring Creek; Cottonwood Creek for a distance of 8.9 km (5.5 mi) and extending 4.3 km (2.7 mi) up South Fork Cottonwood Creek; Shell Creek for a distance of 3.6 km (2.2 mi); Rat Creek for a distance of 2.5 km (1.6 mi); Canyon Creek for a distance of 3.3 km (2.0 mi); Mayfield Creek for a distance of 5.1 km (3.3 mi) and extending 4.9 km (3.0 mi) up Nelson Creek, 11.2 km (7.0 mi) up West Fork Mayfield Creek, and 20.2 km (12.5 mi) up East Fork Mayfield Creek; Deer Creek for a distance of 3.3 km (2.0 mi); Trail Creek for a distance of 10.1 km (6.3 mi); and Pioneer Creek for a distance of 11 km (6.8 mi).

(J) Little Loon Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 18.5 km (11.5 mi) and extending up West Fork Little Loon Creek for 6.2 km.

(K) Little Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 3.9 km (2.4 mi).

(L) Thomas Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 1.8 km (1.1 mi), and extending 3.8 km (2.4 mi) up West Fork Thomas Creek and 4.8 km (3 mi) up East Fork Thomas Creek.

(M) Marble Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 35.9 km (22.3 mi) and extending up into the following tributaries: Trail Creek for a distance of 15.5 km (9.6 mi); Dynamite Creek for a distance of 13.2 km (8.2 mi); Buck Creek for a distance of 6.9 km (4.3 mi); Little Cottonwood Creek for a distance of 6.5 km (4.0 mi); and Big Cottonwood Creek for a distance of 12.2 km (7.6 mi).

(N) Indian Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 32.7 km (20.3 mi) and extending up into the following tributaries: Middle Fork Indian Creek for a distance of 8.7 km (5.4 mi); Cultus Creek for a distance of 4.9 km (3.0 mi); Papoose Creek for a distance of 5.9 km (3.7 mi); Little Indian Creek for a distance of 7.7 km (4.8 mi); and Big Chief Creek for a distance of 8.2 km (5.5 mi).

(O) Pistol Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 29.4 km (18.3 mi) and extending up into the following tributaries: Little Pistol Creek for a distance of 22.1 km (13.7 mi) and including 6.0 km (3.7 mi) of Springfield Creek, 5.5 km (3.4 mi) of West Fork Springfield Creek, and 5.5 km (3.4 mi) of Browning Creek; Forty-Five Creek for a distance of 9.6 km (6.0 mi); Lugar Creek for a distance of 8.8 km (5.5 mi); and Thirty-Eight Creek for a distance of 5.4 km (3.4 mi).

(P) Rapid River from its confluence with the Middle Fork Salmon River upstream for a distance of 27.7 km (17.2 mi) and extending up into the following tributaries: Sheep Creek for a distance of 16.3 km (10.1 mi) and extending 5.1 km (3.2 mi) up North Fork Sheep Creek and 7.2 km (4.5 mi) up South Fork Sheep Creek; Sulfur Creek for a distance of 7.9 km (4.9 mi); Float Creek for a distance of 11.4 km (7.1 mi); Vanity Creek for a distance of 9.6 km (6 mi) and extending 5.4 km (3.4 mi) up Seafoam Creek, and 5.9 km (3.7 mi) up Baldwin Creek; and Duffield Creek for a distance of 10.9 km (6.8 mi).

(Q) Greyhound Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 8.3 km (5.2 mi).

(R) Soldier Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 12.6 km (7.8 mi).

(S) Elkhorn Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 11.9 km (7.4 mi) and extending 7.9 km (4.9 mi) up North Fork Elkhorn Creek, and 6.8 km (4.2 mi) up Middle Fork Elkhorn Creek.

(T) Sulphur Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 29.4 km (18.3 mi) and extending 6.3 km (3.9 mi) up North Fork Sulphur Creek.

(U) Dagger Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 12.4 km (7.7 mi).

(V) Marsh Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 22 km (13.7 mi) and extending up into the following tributaries: Lola Creek for a distance of 6.3 km (3.9 mi); Beaver Creek for a distance of 27.3 km (17.0 mi) and extending 6.5 km (4.0 mi) up Bear Creek and 11.4 km (7.1 mi) up Winnemucca Creek; Cape Horn Creek for a distance of 15.1 km (9.4 mi) and extending 11.5 km (7.1 mi) up Banner Creek; and Knapp Creek for a distance of 24.8 km (15.4 mi).

(W) Bear Valley Creek from its confluence with the Middle Fork Salmon River upstream for a distance of 49.7 km (30.9 mi) and extending up into the following tributaries: Fir Creek for a distance of 11 km (6.8 mi); Cold Creek for a distance of 6.8 km (4.2 mi); Wyoming Creek for a distance of 10 km (6.2 mi); Poker Creek for a distance of 4 km (2.5 mi); an unnamed Tributary entering Bear Valley Creek from the north approximately 0.5 km (0.3 mi) upstream of Poker Creek, for a distance of 2.6 km (1.6 mi); Elk Creek for a distance of 25.5 km (15.8 mi) and extending 9.8 km (6.1 mi) up Cook Creek, 13.6 km (8.6 mi) up Bearskin Creek, 6.3 km (3.9 mi) up Little Beaver Creek, 9.9 km (6.1 mi) up Porter Creek, 5.1 km (3.2 mi) up Little East Fork Elk Creek, 6.4 km (4 mi) up West Fork Elk Creek, 5.2 km (3.2 mi) up North Fork Elk Creek, and 10.2 km (6.3 mi) up East Fork Elk Creek; Pole Creek for a distance of 3.1 km (1.9 mi); Sack Creek for a distance of 8.9 km (5.5 mi); Cache Creek for a distance of 12.3 km (7.6 mi) and extending 3.2 km (2 mi) up an unnamed tributary that enters Cache Creek from the east approximately 4.5 km (2.8 mi) upstream of Bear Valley Creek; Sheeptrail Creek for a distance of 3.6 km (2.2 mi); Cub Creek for a distance of 4.2 km (2.6 mi); and Casner Creek for a distance of 4.4 km (2.7 mi).

(v) Middle Salmon-Panther CHSU

Approximately 1,097 km (682 mi) of stream is proposed as critical habitat in drainages associated with the middle section of the Salmon River, from its confluence with the Middle Fork Salmon River upstream to its confluence with the Pahsimeroi River. Landownership within the CHSU is approximately 79 percent Federal and 11 percent private. This CHSU supports 20 existing bull trout local populations, all of which are identified as essential for bull trout recovery in the Draft Recovery Plan (USFWS 2002). The stream segments proposed for critical habitat designation in this CHSU are described below.

(A) The Salmon River from its confluence with Chamberlain Creek upstream 208 km (129 mi) to its confluence with the Pahsimeroi River. This stretch of the Salmon River provides FMO habitat and connectivity between the bull trout local populations in this area. This stretch also provides a migratory corridor for movement from upstream portions of the Salmon River to the Snake River. All other stream segments in this CHSU are tributaries of the Salmon River and primarily provide spawning and rearing habitat.

(B) Horse Creek from its confluence with the Salmon River upstream 40.9 km 25.4 mi) to its headwaters and extending 4.7 km (2.9 mi) up Cayuse Creek, and 3.9 km (2.4 mi) up Woods Fork Horse Creek.

(C) Owl Creek from its confluence with the Salmon River upstream 23.1 km (14.3 mi).

(D) Panther Creek from its confluence with the Salmon River upstream 73.1 km (45.4 mi) and extending up into the following tributaries: Clear Creek for a distance of 27.7 km (17.2 mi); Beaver Creek for a distance of 15.5 km (9.6 mi); Trail Creek for a distance of 8.8 km (5.5 mi); Napias Creek for a distance of 23.5 km (14.6 mi) and extending 10.9 km (6.8 mi) up Moccasin Creek, 11.5 km (7.1 mi) up Phelan Creek, 12.6 km (7.8 mi) up Arnett Creek, and 8.3 km (5.2 mi) up Rapps Creek; Deep Creek for a distance of 19.5 km (12.1 mi) and extending 13.6 km (8.4 mi) up Little Deep Creek, and 3.2 km (2 mi) up an unnamed tributary that enters Deep Creek from the northeast approximately 11 km (6.8 mi) upstream from Panther Creek; West Fork Blackbird Creek from upstream of the tailings pond 9.1 km (5.7 mi) to its headwaters; Woodtick Creek for a distance of 14.1 km (8.8 mi); Musgrove Creek for a distance of 17.6 km (10.9 mi); Porphyry Creek for a distance of 11.5 km (7.1 mi) and extending 3.8 km (2.4 mi) up South Fork Porphyry Creek; Fourth of July Creek for a distance of 6.0 km (3.7 mi); Opal Creek for a distance of 3.3 km (2.0 mi); Weasel Creek for a distance of 2.8 km (1.7 mi); and Otter Creek for a distance of 5.7 km (3.5 mi).